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ABSTRACT

The stated purpose of this training plan manual is to assist the cooperative industrial education coordinator in determining the student's perfcrmance both in schcol and on the job in order that the student learner may reach his/her occupational goal. Major contents are training plans (lists of learning experiences and job tasks to be undertaken at the job site) for twenty-seven occupations. A brief introduction is presented which includes the following: the history of training plans; the use of a training plan; the values of training plans; and steps in preparing training plans. Each training plan contains the following information: a speciality summary (job description), a list of duties and responsibilities, and specific tasks and knowledges that a student-learner can observe, perform, or master on the job. The twenty-seven occupations covered are aerospace ground equipment mechanic, aircraft maintenance, airframe repair specialist, automotive mechanic, automotive parts man, avionics communications specialist, baker, bookbinder, carpenter, draftsman, drill press operator, duplicating specialist, electrician, fabric and rubber products specialist, floor covering installer, household appliance repairman, landscape gardener, lathe operator, meat cutter, reciprocating engine mechanic, service station attendant, sheet metal worker, small engine repair, stationary engineer, vehicle body mechanic, veterinary hospital assistant, and welder. (A related administrative handbook is available separately--see note.) (JH)



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ED154146

State of New Jersey
Department of Education
Division of Vocational Education

# C.I.E.

# Teacher-Coordinator TRAINING PLANS

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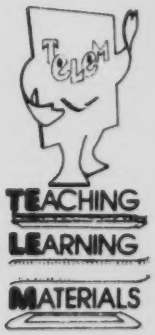


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## PREFACE

Cooperative Industrial Education teacher-coordinators place student-learners in a multitude of diversified industrial occupations. The coordinator placing the student in a training station may or may not be totally familiar with the specific tasks associated with each of the occupational areas. This training plan manual was developed to assist the coordinator in determining the student's performance both in school and on-the-job in order that the student-learner may reach his occupational goal.

The U. S. Office of Education in their publication, Zero In on Cooperative Vocational Education--Training Agreements, has defined a training plan as-- "a format for delineating, for each student, the learning experiences and job tasks to be undertaken at the job site, often paralleled with classroom units of instruction. The training plan, cooperatively determined, usually becomes a part of the training agreement."

In New Jersey we have incorporated the training plan directly into our training agreement. A review of training agreements and training establishment reports indicate a need exists to develop some standardized training plans for coordinators' use in identifying tasks to be included in the student-learners work experience.

The format for this manual includes a job description followed by specific tasks and knowledges that a student-learner can observe, perform or master on-the-job. The plans are not intended to be all inclusive. Nor is each plan "an end in itself" for each student. The student should be continually supervised to determine that the entry job requirements as well as the requirements for additional training, promotion and advancement in the career field of his choice are understood.

New Jersey teacher-coordinators now have an instrument to assist them in developing additional training plans. Good luck in this endeavor.

John A. Wanat, Director
Cooperative Vocational-Technical Education
Division of Vocational Education
New Jersey State Department of Education

## USING TRAINING PLANS

The following information is prepared to provide background about suggestions for use by the teacher-coordinator and others who work with cooperative education programs. Information is presented about training plans in the following sequences: purpose; history, use, the value of plans with respect to student-trainees, teacher coordinators and training station employers; and steps in preparing training plans.

A training plan is a quasi legal contract between the training station employer, the cooperative education teacher coordinator and the student who is to receive the training. As part of the student's school instructional record, the plan is a guide for the coordinator and employer in providing a training program for the student.

As a type of contract, the plan provides a step-by-step scheme to prepare a student for entry-level employment in the field of his choice. It is based on the unique interest, needs and abilities of that student. While it is a contract that all parties agree to, nevertheless, it also is flexible in that it can be modified according to the felt needs of the employer, coordinator and the student at appropriate times during the training process.

### History of Training Plans

The origin of training plans probably is found in apprenticeship training. During the colonial period in this country, arrangements made between a master and the person who was to receive the apprenticeship training were formalized into a contract. The contract became a matter of public record and at times even became part of the minutes of the town meetings.

Several factors after World War II contributed to the need for an acceleration of occupational training. The composition of the work force changed considerably. Women returned to their homes and many men retired. Industry needed manpower. The number of people completing their apprenticeship training did not begin to satisfy that need. Industry could not wait for people to be trained in apprenticeship programs. Yet another factor was returning veterans who needed training and employment.

In order to solve its need for skilled manpower industry began to prove on-the-job training for their unskilled personnel. It furnished those trainees with a type of training plan which included a formal statement of the progress of their wage scale. The trainees also knew what industry's expectations were in terms of skill, knowledge and experience in order for them to progress from one step on that scale to another. Many training plans used in cooperative education contain this similar information.

Use of a Training Plan

A training plan is individualized for a student in a series of conferences between the training station employer or designated supervisor, the cooperative education coordinator and the student who is to receive the training. The meetings can involve any combination of the three parties. Frequently parents of the student trainee are given the opportunity to review the plan also.

The training plan serves as a guide to the various parties involved in the cooperative vocational education of a student.

The plan provides the teacher coordinator with the topics that should be taught in the related instruction phase of the training program. It identifies for the employer the nature and extent of the training experiences to provide to the student. It tells the student what progress he is making in becoming prepared for employment in the world of work.

The Values of Training Plans

Besides serving as a guide for instruction purposes, training plans also provide additional value to the parties who use them.

For the student:

1. The training plan encourages the student to examine his career objectives.
2. It identifies for him the length of time he will need to learn the particular skills of the trade.
3. It provides a document of the skills he developed and the related trade information he learned for use at a later date.

For the teacher-coordinator:

1. A training plan serves as the reference base for the related instruction provided by the coordinator and others in pareparing a student for employment in a particular field.

2. It helps him evaluate the progress of the student trainee and provides him with a basis for discussion about the student's progress with the student, his parents or with the training station employer.
3. It also enables him to evaluate the overall successfulness of his cooperative education program.

For the training station employer:

1. A training plan is a reminder of the nature and extent of a training he has agreed to furnish to the student-trainee.
2. It enables him to have input into the training of possible future employees.
3. It also serves to remind him that the student worker is part of an educational program.

Steps in Preparing Training Plans

The following considerations are suggested when preparing a training plan for use in a cooperative education program:

1. Determine a format to use in all training plans in your cooperative education program. The format can include a payroll table and other code numbers such as D.O.T. and U.S.O.E. code numbers. The plan should be prepared with action verbs of singular tense. Frequently various job activities and related instruction are listed in separate columns on the same line to show the relationship between technical learning and occupational skill.
2. Divide the training into the major areas of responsibility in the trade and identify the typical activities, processed or operations.
3. Secure input from the student and training station employer. At times the student is given the responsibility for the preliminary development of the training plan. The plan is formalized during several visits to the cooperating employer by the coordinator and the student.
4. Prepare the plan to include the extent of training and the time felt necessary for the various training activities.
5. Identify whether or not it will be the responsibility of the training station or the teacher coordinator at the educational institution to provide the learning experience.

TABLE OF CONTENTS


| | Page No. |
|---|---|
| Aerospace Ground Equipment Mechanic | 1 |
| Aircraft Maintenance (Reciproacting Engine Aircraft) | 6 |
| Airframe Repair Specialist | 12 |
| Automotive Mechanic | 17 |
| Automotive Parts Man (Dealership) | 21 |
| Avionics Communications Specialist | 24 |
| Baker | 29 |
| Bookbinder | 33 |
| Carpenter | 36 |
| Draftsman | 40 |
| Drill Press Operator | 43 |
| Duplicating Specialist | 46 |
| Electrician | 49 |
| Fabric and Rubber Products Specialist | 53 |
| Floor Covering Installer | 59 |
| Household Appliance Repairman | 63 |
| Landscape Gardener | 71 |
| Lathe Operator | 75 |
| Meat Cutter | 79 |
| Reciprocating Engine Mechanic - Aircraft | 82 |
| Service Station Attendant | 88 |
| Sheet Metal Worker | 93 |
| Small Engine Repair | 100 |
| Stationary Engineer | 104 |
| Vehicle Body Mechanic | 107 |
| Veterinary Hospital Assistant | 112 |
| Welder | 115 |

6. Obtain input from a variety of sources such as a study guide of the occupation, members of the advisory committee, tradesmen, labor union representatives, a job analysis of the trade, technical and trade magazines, and occupational briefs published by various guidance services.
7. Prepare several copies of the training plan and distribute them to the involved parties. Also attached to each plan a statement about the laws and regulations pertaining to that trade.
8. A copy of the training plan should be kept in the coordinator's office file and upon completion of the program that copy should become part of the student's permanent school record.

In summary, training plans exist to make implementing cooperative education training more effective and meaningful for all associated with the process. The plans should be regarded as a mechanism to help the coordinator, the training station employer and the student. Care should be taken for all involved in that educational process to remember that the individual student is the most important consideration.

Margaret A. Snell
Rutgers University

O. E. Code 17. 31 000
D O T Code 625.281

# AEROSPACE GROUND EQUIPMENT MECHANIC

## SPECIALITY SUMMARY

Inspects, maintains, repairs, and modifies aerospace ground equipment used in support of aircraft, systems, or subsystems.

## DUTIES AND RESPONSIBILITIES

1. Performs preventive maintenance on aerospace ground equipment

   Performs preventive maintenance on ground equipment such as: motors, engine driven generators, air compressors, hydraulic test stands, air conditioners, heaters, small gas turbine engines, and load banks.

   Services equipment with: fuel, oil water, hydraulic fluid and air. Maintains records and logs on equipment.

2. Inspects aerospace ground equipment

   Accomplishes periodic and special inspections, using required test equipment, for malfunctions.

3. Tests aerospace ground equipment

   Tests and operates equipment for proper output, leakage, adjustment, and operation according to technical orders to determine serviceability.

4. Troubleshoots aerospace ground equipment

   Diagnoses malfunctions, using visual and auditory senses, test equipment, and applicable technical publications.

5. Repairs, overhauls, and modifies aerospace ground equipment

   Removes assemblies to allow access to malfunctioning or damaged components or subassemblies. Disassembles and assembles malfunctioning accessories and components of aerospace ground equipment such as: motor and engine driven generator sets, air compressors, hydraulic-pneumatic sets, air conditioners, heaters, exhaust and cooling equipment, and test stands.

6. Cleans aerospace ground equipment

   Cleans dirt, oil, grease, and corrosion from components and accessory systems. Uses prescribed chemical cleaners, solvents, compressed air or other means.

# TRAINING PLAN
## for

AEROSPACE GROUND EQUIPMENT REPAIRMAN
AND
AEROSPACE GROUND EQUIPMENT REPAIR TECHNICIAN

**source** USAF

| TASKS and KNOWLEDGES | applicable | observe | perform | master |
|---|---|---|---|---|
| 1. CAREER PROGRESSION | | | | |
| A. Progression in career ladder | | | | |
| B. Duties of each career ladder | | | | |
| 2. SAFETY | | | | |
| A. Practice shop safety procedures | | | | |
| B. Flightline safety | | | | |
| 3. TECHNICAL ORDERS | | | | |
| A. Technical order system | | | | |
| B. Use appropriate technical orders to locate specific information | | | | |
| 4. AEROSPACE GROUND EQUIPMENT SUPPLY DISCIPLINE | | | | |
| A. Property accountability | | | | |
| B. Property responsibility | | | | |
| 5. MAINTENANCE AND INSPECTION SYSTEM AND FORMS | | | | |
| A. Inspection and maintenance systems | | | | |
| B. Use manhour reporting forms | | | | |
| C. Use maintenance data collection forms | | | | |
| D. Material deficiency reporting system | | | | |
| E. Check reports to determine methods for improving procedures at local activity | | | | |
| F. Use the Identification, Inspection, Maintenance Status Record | | | | |
| 6. AEROSPACE GROUND EQUIPMENT HAND AND SPECIAL TOOLS | | | | |
| A. Select and use appropriate handtools | | | | |
| B. Use special tools and test equipment | | | | |

# TASKS and KNOWLEDGES

AEROSPACE GROUND EQUIPMENT REPAIRMAN
AND
AEROSPACE GROUND EQUIPMENT REPAIR TECHNICIAN

| | applicable | observe | perform | master |
|---|---|---|---|---|
| 7. GENERAL | | | | |
| A. Use preventive corrosion control procedures | | | | |
| B. Paint and mark aerospace ground equipment | | | | |
| C. Prepare equipment for "IN" and "OUT" storage | | | | |
| 8. ELECTRICAL AND ELECTRONIC CIRCUITS AND COMPONENTS | | | | |
| A. Nature of electricity | | | | |
| B. Interpret electrical circuitry, components, wiring diagrams, and schematics | | | | |
| C. Use test equipment to measure electrical circuits | | | | |
| D. Theory of electronics | | | | |
| E. Interpret electronic circuitry, components, wiring diagrams, and schematics | | | | |
| F. Use test equipment to measure electronic circuitry | | | | |
| 9. RECIPROCATING ENGINES | | | | |
| A. Principles and function of systems and components | | | | |
| B. Inspect engines | | | | |
| C. Operate engines | | | | |
| D. Troubleshoot and isolate malfunctions | | | | |
| E. Correct malfunctions | | | | |
| F. Remove and replace engines | | | | |
| 10. ELECTRIC MOTORS AND MOTOR CONTROLS | | | | |
| A. Principles and functions | | | | |
| B. Inspect | | | | |
| C. Use and interpret schematics and diagrams | | | | |
| D. Troubleshoot and isolate malfunctions | | | | |
| 11. GENERATOR SETS | | | | |
| A. Principles and function of systems and components | | | | |
| B. Inspect generators | | | | |
| C. Operate generators under load | | | | |
| D. Use and interpret schematics and diagrams | | | | |
| E. Troubleshoot and isolate malfunctions | | | | |
| F. Correct malfunctions | | | | |

# TASKS and KNOWLEDGES

AEROSPACE GROUND EQUIPMENT REPAIRMAN
AND
AEROSPACE GROUND EQUIPMENT REPAIR TECHNICIAN

| applicable | observe | perform | master |
|---|---|---|---|

12. AIR COMPRESSORS

- A. Principles and function of systems and components
- B. Inspect air compressors
- C. Operate air compressors
- D. Use and interpret schematics and diagrams
- E. Troubleshoot and isolate malfunctions
- F. Correct malfunctions

13. AIR CONDITIONERS

- A. Principles and functions of systems and components
- B. Inspect air conditioners
- C. Operate air conditioners
- D. Use and interpret schematics and diagrams
- E. Troubleshoot and isolate malfunctions
- F. Correct malfunctions

14. PRESSURIZING AND VENTILATING EQUIPMENT

- A. Principles and function of systems and components
- B. Inspect pressurizing and ventilating equipment
- C. Operate pressurizing and ventilating equipment
- D. Use and interpret schematics and diagrams
- E. Troubleshoot and isolate malfunctions
- F. Correct malfunctions

15. HEATERS

- A. Principles and function of systems and components
- B. Inspect heaters
- C. Operate heaters
- D. Use and interpret schematics and diagrams
- E. Troubleshoot and isolate malfunctions
- F. Correct malfunctions

16. GAS TURBINE COMPRESSORS

- A. Principles and function of systems and components
- B. Inspect gas turbine compressors
- C. Operate gas turbine compressors
- D. Use and interpret schematics and diagrams
- E. Troubleshoot and isolate malfunctions
- F. Correct malfunctions

# TASKS and KNOWLEDGES

AEROSPACE GROUND EQUIPMENT REPAIRMAN
AND
AEROSPACE GROUND EQUIPMENT REPAIR TECHNICIAN

| applicable | observe | perform | master |
|---|---|---|---|

17. HYDRAULIC SUPPORT EQUIPMENT

A. Principles and function of systems and components
B. Inspect hydraulic support equipment
C. Operate hydraulic support equipment
D. Use and interpret schematics and diagrams
E. Troubleshoot and isolate malfunctions
F. Correct malfunctions

O. E. Code 17. 04 01
D O T Code 621.281

# AIRCRAFT MAINTENANCE (RECIPROCATING ENGINE AIRCRAFT)

## SPECIALITY SUMMARY

Inspects, repairs, maintains, troubleshoots, services, and modifies aircraft and aircraft installed equipment.

## DUTIES AND RESPONSIBILITIES

1. Performs inspections.

   Performs preflight, post-flight and periodic/phase inspections of aircraft including structures, landing gear, engines, instruments, cockpits, cabins, flight surfaces, and controls.

2. Performs functional checks.

   Performs functional checks of aircraft systems such as hydraulic, electrical, pressurization, lubrication, anti-icing, vacuum induction and exhaust, and installed equipment such as external tanks, tow reels, and hoists.

3. Performs preventive maintenance on aircraft and aircraft installed equipment.

   Inspects aircraft components for cleanliness, alignment, proper clearance and operation, evidence of wear, cracks, and looseness.

4. Repairs, maintains, and services aircraft and aircraft installed equipment.

   Removes, installs, or adjust aircraft and aircraft system components such as control surfaces, wheels, brakes, tires, cowling, enclosures, hose and tubing.

5. Performs assigned maintenance.

   Performs assigned maintenance in repair and reclamation of aircraft and the removal, repair and installation of aircraft wheel and tire assemblies.

# TRAINING PLAN
## for

AIRCRAFT MAINTENANCE (RECIPROCATING ENGINE AIRCRAFT)

**source** USAF

| TASKS and KNOWLEDGES | applicable | observe | perform | master |
|---|---|---|---|---|
| 1. CAREER PROGRESSION | | | | |
| A. Progression in career ladder | | | | |
| B. Duties of each career level | | | | |
| 2. COMMUNICATIONS SECURITY | | | | |
| A. Identify information as Classified, Unclassified, or of possible intelligence value | | | | |
| B. Identify official information as Top Secret, Secret, Confidential, or For Official Use Only | | | | |
| C. Select and recommend mode of transmission dictated by security and expediency required | | | | |
| D. Observe security precautions involved in communications. | | | | |
| 3. AIRCRAFT MAINTENANCE SAFETY | | | | |
| A. Apply safety precautions when: | | | | |
| (1) Using tools and equipment | | | | |
| (2) Servicing aircraft and systems | | | | |
| (3) Performing aircraft maintenance | | | | |
| B. Practice housekeeping consistent with safety of personnel and equipment. | | | | |
| C. Apply safety precautions pertaining to: | | | | |
| (1) Engine air intake and exhaust | | | | |
| (2) High intensity sound | | | | |
| (3) Propeller and rotor planes of rotation | | | | |
| (4) Antenna radiation | | | | |
| (5) Ground handling of aircraft | | | | |
| (6) Aircraft containing live ammunition and explosive material | | | | |
| D. Position and prepare portable fire extinguishers for use. | | | | |
| 4. PUBLICATIONS APPLICABLE TO AIRCRAFT MAINTENANCE | | | | |
| A. Publications pertaining to maintenance | | | | |
| B. Locate information in technical orders | | | | |

# TASKS and KNOWLEDGES

AIRCRAFT MAINTENANCE (RECIPROCATING ENGINE AIRCRAFT)

| applicable | observe | perform | master |
|---|---|---|---|

C. Apply technical order instructions
D. Use standard publications pertaining to maintenance
E. Initiate technical order improvement report.

5. MAINTENANCE MANAGEMENT

A. Functions and responsibilities of the Chief of Maintenance
B. Basic functions of management units that make up the Chief of Maintenance's staff
C. Manhour reporting system
D. Equipment classification designators
E. Job control number
F. Maintenance data collection
G. Processing and controlling of material.

6. MAINTENANCE AND INSPECTION SYSTEM AND FORMS

A. Maintenance systems
B. Inspection systems
C. Use manhour reporting form
D. Use maintenance data collection forms
E. Material deficiency reporting systems
F. Check reports to determine methods for improving procedures at local activity.

7. HAND AND SPECIAL TOOLS

A. Select, care for, and use hand tools
B. Select, care for, and use torque wrenches
C. Select, care for, and use special tools
D. Select, care for, and use measuring tools.

8. AIRCRAFT AND EQUIPMENT RECORDS

A. Record data on maintenance discrepancy and work document for individual aircraft
B. Record data on equipment assigned to aircraft

9. AIRCRAFT GENERAL

A. Prepare repairable or servicable parts for turn-in
B. Perform preflight inspection
C. Perform postflight or thru-flight inspections
D. Perform periodic/phased/isochronal inspections

# TASKS and KNOWLEDGES

AIRCRAFT MAINTENANCE (RECIPROCATING ENGINE AIRCRAFT)

| applicable | observe | perform | master |
|---|---|---|---|

E. Perform special inspections
F. Inventory equipment assigned to aircraft
G. Clean aircraft areas such as surfaces and compartments
H. Identify presence of corrosion
I. Launch and recover aircraft
J. Aircraft towing:

(1) Prepare aircraft for towing
(2) Perform tow team duties

K. Moor aircraft
L. Jack and level aircraft
M. Use interphone
N. Use safetying devices and safetying procedures
O. Identify and use structural hardware such as hose, tubing and fittings
P. Identify and use aircraft hardware such as nuts, bolts, and washers.

10. AIRFRAME SYSTEMS

A. Airframe components and construction of airframe
B. Remove and replace airframe components such as cowling and doors.
C. Remove and replace seats
D. Perform operational check of doors.

11. LANDING GEAR SYSTEMS

A. Landing gear components and system coperation
B. Perform operational check of landing gear
C. Perform operational check of brakes
D. Perform operational check of the steering system
E. Lubricate landing gear components
F. Service shock struts
G. Service tires
H. Bleed and service brake system
I. Remove and replace wheel assemblies
J. Remove and replace brake assemblies
K. Remove and replace landing gear
L. Adjust landing gear components
M. Determine feasibility of retreading aircraft tires
N. Troubleshoot landing gear systems

# TASKS and KNOWLEDGES

AIRCRAFT MAINTENANCE (RECIPROCATING ENGINE AIRCRAFT)

| applicable | observe | perform | master |
|---|---|---|---|

12. UTILITY SYSTEMS

A. Utility system components and system operation
B. Perform functional or operational check of fire detection, overheat warning and fire extinguishing systems
C. Perform operational check of oxygen system
D. Perform operational check of windshield wiper system
E. Service oxygen system
F. Troubleshoot utility systems.

13. FLIGHT CONTROL SYSTEMS

A. Flight control components and system operation
B. Perform operational checks of flight control systems
C. Remove and replace flight control system components such as surfaces and actuators
D. Rig flight control systems
E. Troubleshoot flight control systems
F. Lubricate flight control system components

14. PNEUDRAULIC SYSTEMS

A. Pneudraulic system components and system operation
B. Service pneudraulic systems
C. Troubleshoot pneudraulic systems

15. POWERPLANT

A. Powerplant components, system components, and system operation
B. Perform ground operation of engines
C. Service engine oil system
D. Take engine oil samples (SOAP)
E. Service antidetonant system
F. Adjust cowl flaps
G. Perform operational check of cowl flaps and oil cooler doors
H. Remove and install engine systems components such as generators, starters, and spark plugs
I. Auxiliary powerplant, system components and system operation
J. Operate auxiliary powerplant
K. Remove and install auxiliary powerplants and components
L. Perform operator maintenance on auxiliary powerplants.

# TASKS and KNOWLEDGES

AIRCRAFT MAINTENANCE (RECIPROCATING ENGINE AIRCRAFT)

| applicable | observe | perform | master |
|---|---|---|---|

16. AIRCRAFT FUEL SYSTEMS

A. Fuel systems components and system operation
B. Perform operational check of the aircraft fuel system
C. Refuel aircraft
D. Defuel aircraft
E. Prepare aircraft for fuel cell maintenance
F. Remove and replace fuel booster pumps
G. Change or clean fuel filters

17. ELECTRICAL SYSTEMS

A. Electrical system components and system operation
B. Perform operational check of electrical supply systems
C. Service aircraft battery and sump jars
D. Remove and replace lighting system components such as lenses and bulbs
E. Perform operational check of interior and exterior lighting systems
F. Remove and replace batteries

18. AEROSPACE GROUND EQUIPMENT

Identify and use aerospace ground equipment:

(1) Maintenance stands
(2) Aircraft jacks
(3) Oxygen servicing equipment
(4) Air compressors
(5) Ground heaters and blowers
(6) Portable generators
(7) Portable lighting equipment
(8) Tow vehicles
(9) Air-conditioning units

O.E. Code 17. 04 11
D O T Code 807.381

# AIRFRAME REPAIR SPECIALIST

## SPECIALITY SUMMARY

Repairs, modifies, and fabricates aircraft metal, plastic, fiberglass, and bonded structural parts, components, and assemblies.

## DUTIES AND RESPONSIBILITIES

1. Inspects aircraft metal structures.

   Inspects internal and external aircraft structures and fixed and movable control surfaces to determine repair necessary to restore original strength, weight, and contour.

2. Repairs and modifies aircraft metal structures.

   Removes damaged parts, using hand or powered drilling and cutting tools. Reforms damaged parts and reinstalls repaired or replacement parts. Installs reinforcements and patches. Reams holes to size. Aligns component structures by making precision measurement between selected checkpoints. Seals structures to make them pressure, water and weather tight.

3. Fabricates aircraft and related sheet metal and extruded parts and assemblies.

   Makes layout on sheet metal for required parts in accordance with design specifications. Cuts and trims sheet metal parts. Forms sheet metal parts. Determines need for heat treating to meet specifications. Assembles parts with aircraft fasteners.

4. Repairs plastic, fiberglass, and bonded honeycomb components and bonded structures.

   Inspects damage or deterioration and determines feasibility of repair or necessity for replacement. Repairs or replaces plastic, fiberglass, bonded structures and bonded honeycomb sections.

5. Designs and constructs forming jigs.

6. Fabricates aircraft nonflexible tubing components.

   Cuts, bends, and trims tubing to required shapes and dimensions. Flares tubing and attaches solderless connectors. Cleans interior of tubing and temporarily seals ends.

7. Fabricates aircraft flexible control cables.

   Determines working length, cuts cable, and machine swages fittings to cable. Tests tensile strength of cable assemblies and compares finished length to specifications.

# TRAINING PLAN
## for

AIRFRAME REPAIR SPECIALIST
AND
AIRFRAME REPAIR TECHNICIAN

**source** USAF

| TASKS and KNOWLEDGES | applicable | observe | perform | master |
|---|---|---|---|---|
| 1. CAREER LADDER PROGRESSION | | | | |
| A. Progression in career ladder | | | | |
| B. Duties of each career level | | | | |
| 2. SHOP AND FLIGHT LINE SAFETY | | | | |
| A. Comply with in-shop safety precautions | | | | |
| B. Comply with flight line safety precautions | | | | |
| C. Report ground accidents | | | | |
| 3. TECHNICAL PUBLICATIONS | | | | |
| A. Purpose, scope, and application of the technical order system | | | | |
| B. Use indexes to locate technical order numbers and titles related to airframe repair | | | | |
| C. Use technical publications for repairs and inspections | | | | |
| D. Report technical order deficiencies | | | | |
| 4. RESPONSIBILITY FOR SUPPLIES AND EQUIPMENT | | | | |
| A. Supply procedures to include classification and identification | | | | |
| B. Use indexes and supply catalogs | | | | |
| C. Use supply condition tags | | | | |
| D. Use issue slips | | | | |
| E. Use turn-in slips | | | | |
| F. Property accountability and responsibility | | | | |
| 5. MAINTENANCE MANAGEMENT | | | | |
| A. Functions and responsibilities of the Chief of Maintenance | | | | |
| B. Basic functions of management units that make up the Chief of Maintenance Staff | | | | |
| C. Manhour reporting system | | | | |
| D. Equipment classification designators | | | | |
| E. Job control number | | | | |
| F. Maintenance data collection | | | | |
| G. Processing and controlling of material | | | | |

# TASKS and KNOWLEDGES

AIRFRAME REPAIR SPECIALIST
AND
AIRFRAME REPAIR TECHNICIAN

| applicable | observe | perform | master |
|---|---|---|---|

6. MAINTENANCE AND INSPECTION SYSTEM AND FORMS

   A. Maintenance systems
   B. Inspection systems
   C. Use manhour reporting forms
   D. Use maintenance data collection forms
   E. Material deficiency reporting system
   F. Check reports to determine methods for improving procedures at local activity

7. HANDTOOLS AND SHOP EQUIPMENT

   A. Select, use, and care for handtools
   B. Select, use, and care for special tools and equipment

8. INSPECT, REPAIR, MODIFY AND FABRICATE METAL PARTS AND ASSEMBLIES OF AIRFRAME STRUCTURES

   A. Identification of aircraft structures
   B. Inspect and classify damaged structures and parts
   C. Identify and select metals
   D. Working characteristics of metals
   E. Identify types of corrosion
   F. Use and interpret drawings and blueprints
   G. Develop layout for repairs and parts
   H. Calculate shop mathematics
   I. Cut and trim sheet metal
   J. Form metal parts:

      1. Machine form parts
      2. Hand form parts

   K. Identify rivets
   L. Layout rivet patterns
   M. Prepare rivet holes
   N. Apply corrosion preventatives
   O. Fasten parts using rivets
   P. Skin repairs

      1. Make non-flush repairs
      2. Make flush repairs
      3. Seal structures
      4. Apply aerodynamic smoothers

   Q. Make substructural member repairs
   R. Make combination substructural member and skin repairs
   S. Assemble parts using special fasteners
   T. Repair spot welded assemblies
   U. Align component structures
   V. Balance aircraft control surfaces

# TASKS and KNOWLEDGES

AIRFRAME REPAIR SPECIALIST
AND
AIRFRAME REPAIR TECHNICIAN

| applicable | observe | perform | master |
|---|---|---|---|

9. INSPECT, REPAIR, AND REPLACE TRANSPARENT PLASTIC, FIBERGLASS AND BONDED HONEYCOMB COMPONENTS

   A. Transparent plastic

      1. Inspect and classify damaged parts
      2. Identification and characteristics of transparent plastics
      3. Repair or fabricate and install transparent plastic parts

   B. Fiberglass

      1. Inspect and classify damaged parts
      2. Identification and characteristics of fiberglass
      3. Repair mat-mold fiberglass parts
      4. Repair solid-laminate fiberglass parts
      5. Repair fiberglass bonded honeycomb parts
      6. Replace fiberglass parts

   C. Metal bonded honeycomb

      1. Inspect and classify damaged parts
      2. Identification and characteristics of metal bonded honeycomb
      3. Repair metal bonded honeycomb parts
      4. Replace metal bonded honeycomb sections

10. FABRICATE CABLE ASSEMBLIES

   A. Identify and select cable construction materials
   B. Determine working length, and cut cable
   C. Swage fittings to cable
   D. Inspect and test fabricated cable assembly

11. FABRICATE AIRCRAFT TUBING ASSEMBLIES

   A. Identify and select aircraft plumbing materials
   B. Cut, bend, and flare tubing and install fittings
   C. Bead tubing
   D. Clean and temporarily seal tubing

# TASKS and KNOWLEDGES

AIRFRAME REPAIR SPECIALIST
AND
AIRFRAME REPAIR TECHNICIAN

| applicable | observe | perform | master |
|---|---|---|---|

12. INSPECTIONS

    A. Inspect condition of airframe structural components and control surfaces
    B. Inspect condition of plastic fiberglass, and honeycomb parts
    C. Inspect fabricated and repaired items for quality of workmanship

13. REPAIR OF AIRCRAFT METAL TANKS

    A. Determine procedures for repairs
    B. Trim out damaged area and force out dents
    C. Form and cut patches, reinforcements, or replacement parts
    D. Fit and rivet tank repairs

O. E. Code 17. 03 02
D O T Code 620.381

# AUTOMOTIVE MECHANIC

## SPECIALITY SUMMARY

Inspects, maintains, and repairs motor vehicles.

## DUTIES AND RESPONSIBILITIES

1. Determine serviceability of vehicle systems

   Determines overall condition of the vehicle, causes of malfunctions, and need for repair. Analyze malfunctions by visual and/or auditory examination, operation, and use of appropriate test equipment.

2. Analyze vehicle engine systems

   Inspect, test, and troubleshoot engine mechanical systems, crankcase ventilating systems, exhaust emission and anti-pollution systems, lubricating, cooling, air conditioning and exhaust systems, engine electrical systems, engine fuel-air systems.

3. Inspect, test and troubleshoot power train, brakes, steering and suspension systems

4. Removes, replaces, repairs, adjusts, overhauls vehicle systems

   Removes and replaces with new or rebuilt units, repairs, adjust or overhauls components of the engine mechanical, electrical, air conditioning, fuel-air, anti-pollution and emission control systems, power train, brakes, steering and suspension systems.

5. Performs preventive and special maintenance

   Establishes, maintains, and uses technical, administrative and supply publications, vehicle maintenance data, and manhour accounting forms and reports. Performs maintenance on vehicles requiring corrosion control, winterization, storage or shipment.

6. Repairs and services safety accessories

   Repairs and services safety accessories such as seat belts, mirrors, windshield wiper motor, arms and blades, lights, indicators, and warning devices.

7. Practices shop safety and security procedures within an automotive maintenance organization.

# TRAINING PLAN
## for

AUTOMOTIVE MECHANIC

**source** USAF

| TASKS and KNOWLEDGES | applicable | observe | perform | master |
|---|---|---|---|---|
| 1. CAREER PROGRESSION | | | | |
| A. Progression in career field | | | | |
| B. Duties of each career level | | | | |
| 2. PRACTICE AUTOMOTIVE PERSONNEL AND EQUIPMENT SHOP SAFETY | | | | |
| 3. VEHICLE MAINTENANCE PUBLICATIONS | | | | |
| A. Scope and application of the administrative publications | | | | |
| B. Scope and application of the technical order system | | | | |
| C. Maintain publication files | | | | |
| D. Use appropriate publications to locate specific information | | | | |
| 4. MAINTENANCE AND INSPECTION SYSTEM AND FORMS | | | | |
| A. Maintenance and inspection system | | | | |
| B. Use maintenance data collection forms | | | | |
| C. Use maintenance data collection reports | | | | |
| D. Use manhour accounting forms | | | | |
| E. Use manhour accounting reports | | | | |
| F. Material deficiency reporting system | | | | |
| 5. USE MAINTENANCE TOOLS AND EQUIPMENT | | | | |
| 6. PREVENTIVE AND SPECIAL MAINTENANCE POLICIES AND PROCEDURES | | | | |
| A. Prepare vehicles for winterization, storage and shipments, and corrosion control | | | | |
| B. Repair of service vehicle safety accessories | | | | |
| C. Inspect, maintain, and repair antipollution and emission control systems | | | | |

# TASKS and KNOWLEDGES

AUTOMOTIVE MECHANIC

| applicable | observe | perform | master |
|---|---|---|---|

7. GASOLINE ENGINES

   A. Principles of operation, function, and relationship of engine systems and components
   B. Repair or service engine components
   C. Repair or service engine systems
   D. Use visual, auditory, operational means, and test equipment to check engine mechanical systems

8. STARTING SYSTEMS

   A. Principles of operation, function, and relationship of components
   B. Repair or service starting systems and components
   C. Use visual, auditory, operational means, and test equipment to check starting systems

9. CHARGING SYSTEMS

   A. Principles of operation, function, and relationship of charging system components
   B. Repair or service charging system components
   C. Use visual, auditory, operational means, and test equipment to check charging systems

10. IGNITION SYSTEMS

   A. Principles of operation, function, and relationship of battery and magneto ignition systems and components
   B. Repair or service ignition system components
   C. Use visual, auditory, operational means, and test equipment to check ignition systems

11. FUEL-AIR SYSTEMS

   A. Principles of operation, function, and relationship of gasoline engine fuel-air system components
   B. Repair or service fuel systems and components
   C. Use visual, auditory, operational means, and test equipment to check fuel-air systems

12. ELECTRICAL SYSTEMS

   A. Function and operation of lighting, warning, and signal systems
   B. Repair lighting, warning and signal systems
   C. Interpret circuits, schematics, and diagrams and use visual, auditory, operational means, and test equipment to check electrical systems

# TASKS and KNOWLEDGES

AUTOMOTIVE MECHANIC

| applicable | observe | perform | master |
|---|---|---|---|

13. POWER TRAIN

    A. Principles of operation, function, and relationship of power trains and components
    B. Repair power trains and components
    C. Use visual, auditory, operational means, special tools, and test equipment to check power train systems and components

14. BRAKES

    A. Principles of operation, function, and relationship of brake system components
    B. Repair or service brake systems and components
    C. Use visual, auditory, operational means, and test equipment to check brake system

15. STEERING SYSTEMS

    A. Principles of operation, function, and relationship of steering system components
    B. Repair or service steering systems and components
    C. Use visual, auditory, operational means, and test equipment to check steering systems

16. SUSPENSION SYSTEMS

    A. Principles of operation, function, and relationship of suspension system components
    B. Repair or service suspension system components
    C. Use visual, auditory, operational means, and test equipment to check suspension systems, frame alignment and wheel balance

17. COMPRESSION-IGNITION ENGINES

    A. Principles of operation, function, and relationship of components
    B. Inspect, troubleshoot, and service compression-ignition engine systems

18. AIR CONDITIONING

    A. Principles of operation, function, and relationship of air conditioning system and components
    B. Repair or service air conditioning system components
    C. Use visual, auditory, operational means, and test equipment to check air conditioning systems

O. E. Code 17. 03 99
D O T Code 222.387

# AUTOMOTIVE PARTS MAN (DEALERSHIP)

## SPECIALITY SUMMARY

Sells, purchases, delivers, inventories and distributes replacement parts and accessories for automobiles and trucks sold by dealership. Supplies parts to dealer's mechanics.

## DUTIES AND RESPONSIBILITIES

1. Performs selling procedures

   Uses parts manual to locate and identify parts. Communicates with customers, prices items, handles money in sales, and bills customers.

2. Performs purchasing procedures

   Chooses suppliers, phones in orders, records merchandise ordered, fills immediate parts demands.

3. Performs delivery procedures

   Obtains parts from suppliers, loads truck, develops delivery route, conducts pick-up and delivery transactions.

4. Performs inventory procedures

   Updates catalogue and price lists, replenishes stock, unpacks and distributes incoming shipments, records sales, and takes inventory.

5. Performs warranty procedures

   Issues, labels, stores, packs and returns warranty parts.

# TRAINING PLAN
## for

AUTOMOTIVE PARTS MAN (DEALERSHIP)

SOURCE NJ

| TASKS and KNOWLEDGES | applicable | observe | perform | master |
|---|---|---|---|---|
| 1. CAREER PROGRESSION | | | | |
| A. Progression in career field | | | | |
| B. Duties of each career level | | | | |
| 2. SALES PROCEDURES | | | | |
| 1. Read parts manual to ascertain type and specification of parts | | | | |
| 2. Locate customers part in the inventory | | | | |
| 3. Communicate with customers | | | | |
| 4. Price the items being requested by the customer | | | | |
| 5. Handle money in a selling transaction | | | | |
| 6. Bill customers with credit accounts | | | | |
| 3. PURCHASE PROCEDURES | | | | |
| 1. Choose the most appropriate supplier | | | | |
| 2. Call in orders on the telephone or in person | | | | |
| 3. Record merchandise that is to be ordered | | | | |
| 4. Fill immediate parts demand | | | | |
| 4. TRANSPORTATION AND DELIVERY PROCEDURES | | | | |
| 1. Drive truck to various suppliers to pick up parts | | | | |
| 2. Pack a truck with supplies | | | | |
| 3. Develop a delivery route to customers | | | | |
| 4. Conduct a pick-up transaction | | | | |
| 5. Conduct a delivery transaction | | | | |
| 5. INVENTORY PROCEDURES | | | | |
| 1. Conduct a physical inventory | | | | |
| 2. Organize the paper work involved in maintaining an inventory | | | | |
| 3. Update inventory when shipments arrive | | | | |
| 4. Use packing slips to check incoming orders | | | | |
| 5. Place inventory in appropriate bins or drawers for storage | | | | |

# TASKS and KNOWLEDGES

AUTOMOTIVE PARTS MAN (DEALERSHIP)

| applicable | observe | perform | master |
|---|---|---|---|

6. Process special orders on arrival
7. Return parts ordered by mistake
8. Return obsolete parts properly
9. Keep inventory data up to date with every sales transaction

6. WARRANTY PARTS PROCEDURES

1. Issue warranty parts for replacement
2. Label warranty parts
3. Store warranty parts
4. Pack and return warranty parts properly

O. E. Code 17. 15 99
D. O. T. Code 720.281
823.281

# AVIONICS COMMUNICATIONS SPECIALIST

## SPECIALITY SUMMARY

Installs, maintains, modifies, troubleshoots, and repairs avionic communications equipment and test equipment.

## DUTIES AND RESPONSIBILITIES

1. Performs preventive maintenance on avionic communications equipment.

   Inspects and tests avionic communications systems at specified intervals to locate defective components or interconnections. Adjusts or replaces defective components. Turns on equipment, sets controls in various operating positions, and evaluates equipment performance, using applicable test equipment and technical orders.

2. Installs avionic communications equipment.

   Checks equipment visually and by use of test equipment for serviceability prior to installation. Assembles, connects, and interwires system components. Conducts detailed test of installed equipment for compliance with technical orders. Places in operation, tunes, adjusts, and aligns components to obtain maximum operating efficiency.

3. Repairs avionic communications equipment.

   Isolates troubles in inoperative or malfunctioning equipment through prescribed procedures using peculair or common test equipment.

4. Modifies avionic equipment

   Accomplishes routine modification of equipment in accordance with modification work orders. Performs progressively more difficult testing and repair duties as specifically directed.

5. Maintains inspection and maintenance records.

   Posts entries on applicable maintenance and inspection forms and records. Completes maintenance data collection forms. Recommends methods to improve equipment performance and maintenance procedures.

# TRAINING PLAN
## for

AVIONIC COMMUNICATIONS SPECIALIST

SOURCE USAF

| TASKS and KNOWLEDGES | applicable | observe | perform | master |
|---|---|---|---|---|
| 1. CAREER PROGRESSION | | | | |
| A. Progression in career ladder | | | | |
| B. Duties of each career level | | | | |
| 2. COMMUNICATIONS SECURITY (TRANSMISSION SECURITY) | | | | |
| A. Identify information as Classified, Unclassified, or of possible intelligence value. | | | | |
| B. Identify official information as Top Secret, Secret, Confidential, or For Official Use Only. | | | | |
| C. Select and recommend mode of transmission dictated by security and expediency required | | | | |
| D. Observe security precautions involved in communications | | | | |
| E. Safeguard classified/sensitive information and equipment | | | | |
| 3. MAINTENANCE AND INSPECTION SYSTEM AND FORMS | | | | |
| A. Maintenance system | | | | |
| B. Inspection systems | | | | |
| C. Use manhour reporting form | | | | |
| D. Use maintenance data collection forms | | | | |
| E. Material deficiency reporting system | | | | |
| 4. TECHNICAL PUBLICATIONS | | | | |
| A. Air Force Technical Order System | | | | |
| B. Use technical orders when maintaining, modifying, or inspecting avionics equipment and aircraft installed systems | | | | |
| C. Use standard publications to obtain information pertinent to maintenance | | | | |
| D. Report technical order deficiencies | | | | |

# TASKS and KNOWLEDGES

AVIONICS COMMUNICATIONS SPECIALIST

| applicable | observe | perform | master |
|---|---|---|---|

5. ANALYSIS OF AIRCRAFT COMMUNICATIONS SYSTEMS

   A. Purpose and performance characteristics of aircraft communications systems

   B. Make operational, block diagram, and schematic diagram analysis of:

      (1) UHF systems
      (2) VHF AM systems
      (3) VHF FM systems
      (4) HF systems (AM and SSB)
      (5) Interphone systems
      (6) Automatic DF groups
      (7) Data link systems
      (8) Emergency radios and personnel beacons
      (9) Crash position indicating systems

6. ORGANIZATIONAL MAINTENANCE OF INSTALLED EQUIPMENT

   A. Locate components of a communications system in assigned aircraft
   B. Apply flight-line safety procedures
   C. Connect and operate aerospace ground equipment (AGE) required to perform flight-line systems maintenance
   D. Operate aircraft switches and controls necessary to place aircraft communications systems in operation
   E. Identify trouble symptoms from operational checks of aircraft communications equipment systems
   F. Localize and identify faulty system components through:

      (1) Visual checks
      (2) Operational checks
      (3) Use of common and peculiar test equipment
      (4) Comparison of test results with technical orders
      (5) Substitution of system components
      (6) Symptom analysis using technical orders, trouble isolation charts, wiring and block diagrams, and signal data flow charts

   G. Perform preinstallation tests of aircraft communications systems major components
   H. Install coaxial and multi-conductor cables

# TASKS and KNOWLEDGES

AVIONICS COMMUNICATIONS SPECIALIST

| applicable | observe | perform | master |
|---|---|---|---|

I. Install aircraft communications equipment in aircraft and interconnect and safety wire components
J. Conduct detailed test of aircraft communications equipment after installation and adjust for maximum operating efficiency in accordance with applicable technical manuals
K. Modify aircraft communications equipment in accordance with applicable directives

7. INTERMEDIATE LEVEL SHOP MAINTENANCE

A. Make performance checks of defective major components and determine symptoms of malfunctions
B. Analyze trouble symptoms of major components by use of schematic diagrams, signal flow diagrams, and technical order trouble analysis charts
C. Isolate malfunctions to a defective subassembly by use of:

(1) Signal substitution or tracing
(2) Test point measurements
(3) Subassembly substitution

D. Locate defective circuit components by:

(1) Signal substitution or tracing and voltage and resistance measurements
(2) Component substitution

E. Identify defective circuit components by use of schematic diagrams and illustrated parts breakdown
F. Use hand tools and soldering equipment to remove and replace defective circuit components:

(1) In wired circuits
(2) On printed circuit boards

G. Remove and replace defective subassemblies
H. Adjust and align repaired equipment for maximum operating efficiency in accordance with applicable technical manual.

8. PREVENTIVE MAINTENANCE

A. Practice corrosion control in electronic systems and interconnections
B. Clean and lubricate equipment and components
C. Perform periodic inspection
D. Complete inspection forms and records

# TASKS and KNOWLEDGES

AVIONICS COMMUNICATIONS SPECIALIST

| applicable | observe | perform | master |
|---|---|---|---|

9. TEST EQUIPMENT

   A. Principles of operation, capabilities, limitations, and substitutional suitability
   B. Select and use authorized test equipment such as multi-meters, voltmeters, oscilloscopes, signal generators, power meters, frequency meters, tube and transistor testers, and peculiar AGE equipment
   C. Recognize defective test equipment observed during operation
   D. Perform maintenance and calibration of owner-supported peculiar test equipment.

O. E. Code 17. 29 01
D O T Code 526.781

# BAKER

## SPECIALITY SUMMARY

Prepares and bakes bread and pastries.

## DUTIES AND RESPONSIBILITIES

1. Handles formulas

   Incorporates ingredients into dough by either hand or machine mixing. Divides, molds and shapes bread and pastry dough. Insures that proper temperatures and time periods are adhered to during mixing, fermentation, proofing and baking.

2. Finishing and decorating

   Prepares fillings and icings. Fills, finishes and decorates baked pastries.

3. Wrapping

   Cools, slices and wraps baked bread.

4. Maintenance

   Operates and performs preventive maintenance on bakery equipment.

# TRAINING PLAN
## for

BAKER

SOURCE NJ

| TASKS and KNOWLEDGES | applicable | observe | perform | master |
|---|---|---|---|---|
| 1. CAREER PROGRESSION | | | | |
| A. Progression in career field | | | | |
| B. Duties of each career level | | | | |
| 2. FORMULAS | | | | |
| A. Establish a file of tested formulas | | | | |
| B. Calculate unit costs of various ingredients | | | | |
| C. Determine yields of specific dough formulas | | | | |
| D. Estimate cost-profit relationships in using one ingredient over another | | | | |
| E. Classify formulas for specific uses | | | | |
| F. Determine the function of each ingredient in a given formula | | | | |
| G. Adjust, reduce, or expand formulas to make yields agree with output needs | | | | |
| H. Research trade literature in order to expand the formula file and keep up with new developments in the production of old products and the creation of new products | | | | |
| I. Discard obsolete and questionable formulas | | | | |
| 3. EQUIPMENT SAFETY DEVICES | | | | |
| A. Locate safety devices on bread and cake mixing machines | | | | |
| B. Locate safety devices on cutting and forming machines | | | | |
| C. Locate safety devices on ovens and steam boilers | | | | |
| D. Check all safety devices to see that they are operational | | | | |
| 4. MIXING PROCEDURES | | | | |
| A. Weigh and measure dry and liquid ingredients | | | | |
| 1. Use liquid measuring devices | | | | |
| 2. Use baker's-type balance scales and weights | | | | |
| B. Select the proper ingredients which apply to the formula being mixed | | | | |
| 1. Fresh | | | | |

2. Frozen
3. Canned
4. Dry ingredients

C. Determine the type of mixing machine, beathers, and speeds needed for specific dough to be mixed
D. Check safety devices and ascertain that they are operational
E. Mix various types of doughs; bread, cake, pastry, rolls, pies
F. Practice proper machine clean-up and maintenance procedures

5. BENCH WORK

A. Grease, insert liners, and prepare proper size pans for specific uses
B. Make up various types of baked goods:

1. Breads
2. Cakes
3. Pies
4. Rolls
5. Fillings

C. Use refrigeration devices for made-up work
D. Use various types of proofing devices including proof boxes
E. Keep records of yields

6. OVEN TYPES AND OPERATION

A. Select the proper type of oven for the product:

1. Traveler
2. Blodget
3. Tunnel

B. Check safety devices to see that they are operational
C. Set desired temperature and check to see that it is maintained
D. Practice proper feeding and baking out procedures
E. Recognize when products are baked by examining color and texture

# TASKS and KNOWLEDGES

BAKER

| applicable | observe | perform | master |
|---|---|---|---|

7. FINISHING AND DECORATING

A. Mix finishing materials:

1. Icings
2. Buttercreams
3. Custards
4. Whipped Creams
5. Other finishing materials

B. Use finishing tools:

1. Bowl
2. Knives
3. Tubes
4. Tips
5. Bags
6. Other finishing tools

C. Practice cake decorating and portioning procedures

D. Make decorations:

1. Roses
2. Stems
3. Borders
4. Birthday sets
5. Leaves

E. Wrap, package and label finished products

F. Keep records of finished goods and yields

O E Code 17. 19 06
D O T Code 653.687

# BOOKBINDER

## SPECIALITY SUMMARY

Operates and performs operator maintenance on bindery equipment.

## DUTIES AND RESPONSIBILITIES

1. Perforates paper

   Aligns machine and paper. Operates perforating machine and routes paper.

2. Operates page numbering machine

   Jogs and arranges pages in sequence. Loads and operates numbering machine and routes pages.

3. Operate collating/sorting machine

4. Operates trimming/cutting machine

   Loads trimming machine and trims pages to required size. Route trimmed pages.

5. Operates bindery equipment

   Operates bindery equipment such as: staple machines, stitching machines, stamping machines, cover applying machines, and folding machines.

6. Performs preventive maintenance on bookbinding machine and equipment

   Checks safety devices for proper operation. Maintains machines in proper operatinc condition.

# TRAINING PLAN
## for

BOOKBINDER

SOURCE NJ

| TASKS and KNOWLEDGES | applicable | observe | perform | master |
|---|---|---|---|---|
| 1. CAREER PROGRESSION | | | | |
| A. Progression in career ladder | | | | |
| B. Duties of each career level | | | | |
| 2. SAFETY | | | | |
| A. Practice shop safety procedures | | | | |
| B. Practice machine and hand tool safety | | | | |
| 3. PERFORATING PAPER | | | | |
| A. Locate safety devices on perforating machine | | | | |
| B. Check safety devices to be sure they are operational | | | | |
| C. Check machine to see that it is properly aligned and maintained | | | | |
| D. Perforate the paper | | | | |
| E. Clean machine and surrounding areas | | | | |
| F. Route perforated paper for next process | | | | |
| 4. PAGE NUMBERING AND JOGGING PAPER | | | | |
| A. Check safety devices on numbering machine for location and operation | | | | |
| B. Jog and arrange piles of pages in proper sequence | | | | |
| C. Load numbering machine with pages | | | | |
| D. Number pages | | | | |
| E. Change number plate after each numbering operation | | | | |
| F. Clean machine and surrounding area | | | | |
| G. Route numbered pages to next process area | | | | |
| 5. COLLATING | | | | |
| A. Check safety devices on the collating machine for location and operation | | | | |
| B. Load collating machine with stacks of pages in proper numerical sequence | | | | |
| C. Collate pages in proper numerical sequence | | | | |
| D. Clean machine and area around it | | | | |
| E. Route collated pages to next process area | | | | |

# TASKS and KNOWLEDGES

BOOKBINDER

| applicable | observe | perform | master |
|---|---|---|---|

6. TRIMMING PROCESS

   A. Check safety devices on trimming-cutting machine for location and operation
   B. Removes blades and check for sharpness; replace all dull blades
   C. Set paper size adjustments
   D. Load trimming machine and trim pages to proper size
   E. Clean machine and surrounding areas
   F. Route trimmed pages to next process area

7. BINDING AND FINISHING PROCESS

   A. Operate cover-applying machine and apply covers
   B. Operate sewing or stitching machine
   C. Operate folding and stapling machine
   D. Paste and glue bindings
   E. Pad and cheesecloth covers
   F. Operate gold-stamping machine
   G. Prepare stuffers for inserting
   H. Insert stuffers
   I. Package and prepare for shipment
   J. Record yield for billing

O. E. Code 17. 10 01
D O T Code 760.781

# CARPENTER

## SPECIALITY SUMMARY

Erects wooden framework of buildings. Installs doors, stairs, floors, and wooden trim. Constructs forms, sheds, and other wooden structures. Repairs items made of wood or similar material.

## DUTIES AND RESPONSIBILITIES

1. Plan for construction

   Prepares plans and bills of material needed for construction to include selection of lumber, cost estimation, ordering, and scheduling.

2. Constructs foundations

   Lays out building lines, erects batter boards and forms. Constructs footings, foundation walls, and concrete floors.

3. Erects wooden frame work of buildings

   Constructs the walls using studs, plates, headers, beams, and girders. Constructs floors.

4. Constructs scaffolding

5. Frames roof

   Lays out the plate, ridge, and rafters. Sheaths roof.

6. Finishes building exterior

   Installs doors, windows, gutters, flash caps, and window screens. Applies sheathing, lath, shingles and composition roofing.

7. Finishes interior of building

   Applies paneling, flooring, wall board to studs. Installs finishing materials such as mantles, bookcases, cabinets, moldings, and trim.

8. Building stairs

   Lays out and constructs or assembles milled stairways and basement stairs.

# TRAINING PLAN
## for

CARPENTER

source NJ

| TASKS and KNOWLEDGES | applicable | observe | perform | master |
|---|---|---|---|---|
| 1. CAREER PROGRESSION | | | | |
| A. Progression in career field | | | | |
| B. Duties of each career level | | | | |
| 2. PLAN FOR CONSTRUCTION | | | | |
| A. Read local building codes | | | | |
| B. Understand local building codes | | | | |
| C. Read blue prints and plans | | | | |
| D. Prepare layouts | | | | |
| E. Selection of lumber by: | | | | |
| 1. Size | | | | |
| 2. Grade | | | | |
| F. Order lumber from suppliers | | | | |
| G. Estimate costs of construction | | | | |
| H. Prepare bills | | | | |
| 3. CONSTRUCTION PROCEDURES | | | | |
| A. Foundation formwork | | | | |
| 1. Layout building lines | | | | |
| 2. Erect batter boards | | | | |
| 3. Locate and mark excavation lines | | | | |
| 4. Construct form joints and intersections | | | | |
| 5. Plumb, level and brace forms | | | | |
| 6. Build forms for steps and stairs | | | | |
| 7. Insert wire tires | | | | |
| 8. Remove forms from concrete | | | | |
| B. Wall and floor framing | | | | |
| 1. Splice and join joist, beams and girders | | | | |
| 2. Layout sills and girders for joists and headers | | | | |
| 3. Frame around wells and openings in floor and ceilings | | | | |
| 4. Frame unsupported corners and landings | | | | |

# TASKS and KNOWLEDGES

CARPENTER

| applicable | observe | perform | master |
|---|---|---|---|

5. Locate and bore holes, set and grout sills
6. Lay and level joists
7. Lay and high joint subflooring
8. Cut studs and build corner studs
9. Lay off and cut plates for studs
10. Frame openings in walls
11. Layout and frame trussed partitions
12. Adapt framing to receive plumbing, wiring, heating, plastering and filling
13. Frame bay windows
14. Apply sheathing horizontally and diagonally

C. SCAFFOLDING

1. Construct upright outrigger scaffolds
2. Construct and use suspended scaffolds
3. Construct and hang bracket scaffold
4. Construct window bracket scaffold

D. ROOF FRAMING

1. Lay off plate and ridge to receive rafters
2. Lay off and cut common rafters
3. Frame roof openings
4. Lay off and cut jack, hip, and valley rafters
5. Frame unequal pitch intersections
6. Lay off and cut collar beams
7. Frame dormer windows
8. Frame gambrel roof
9. Frame shed roof

E. EXTERIOR FINISH

1. Cut and nail sheathing and lath
2. Apply wooden shingles
3. Apply rolled composition roofing
4. Apply valley tin, flashing, ridge rolls
5. Install gutters
6. Apply asphalt shingles, sheetmetal and tile roofing
7. Apply outside trim
8. Shingle outside wall
9. Set window frames
10. Assemble milled doors and window frames
11. Flash caps over doors and windows
12. Construct window screens

# TASKS and KNOWLEDGES

CARPENTER

| applicable | observe | perform | master |
|---|---|---|---|

F. INTERIOR FINISH

1. Cut and nail shiplap or lath on walls
2. Cut and apply paneling
3. Cut and nail commercial wall board
4. Fit and hang window sash
5. Set inside door frames
6. Case door and window openings
7. Cut and fit baseboard
8. Trim interior cornice and ceiling beams
9. Lay finish flooring with butt joints
10. Lay end match flooring
11. Lay block flooring
12. Fit and hang doors
13. Install thresholds
14. Install door locks
15. Install hardware on windows, doors and cabinets
16. Cope molding
17. Set level and plumb mantles, bookcases, kitchen cabinets and other built-ins

G. STAIR BUILDING

1. Lay out and cut simple straight run stair stringers
2. Construct basement stairs
3. Lay out and cut routed stringers
4. Assemble milled stairway
5. Lay out and cut routed stringers
6. Assemble milled stairway
7. Cut and fit skirting board
8. Miter risers into stringers
9. Return nosing on steps
10. Assemble newel, handrail and balustrade

O E Code 17. 13 00
D O T Code 017.281/050

# DRAFTSMAN

## SPECIALITY SUMMARY

Makes drawings from designs, layouts and sketches. Makes changes in detail and assembly drawings.

## DUTIES AND RESPONSIBILITIES

1. **Prepares Drawings**

   Prepares detail drawings based on rough sketches, specifications and calculations made by engineers, architects and designers.

2. **Use of Drawing Tools**

   Prepares drawings using such tools as compasses, dividers, protractors, triangles and T-squares.

3. **Use of Drawing Equipment**

   Prepares drawings using drafting machines that combine the functions of several drafting tools. Uses blueprint equipment to reproduce copies.

4. **Solves Technical Problems**

   Uses handbooks, tables, and slide rules to help solve technical problems.

# TRAINING PLAN
## for

DRAFTSMAN

SOURCE NJ

| TASKS AND KNOWLEDGES | applicable | observe | perform | master |
|---|---|---|---|---|
| 1. CAREER PROGRESSION | | | | |
| A. Progression in career ladder | | | | |
| B. Duties of each career level | | | | |
| 2. DRAFTING PROCEDURE | | | | |
| A. Draw black on white scale drawings | | | | |
| B. Practice precise draftsmanship | | | | |
| C. Select drawing instruments | | | | |
| D. Draw using instruments and drafting tools | | | | |
| E. Draw for photography reduction | | | | |
| F. Draw drawings with drafting pencils | | | | |
| G. Draw drawings with inking tools | | | | |
| H. Draw detail drawings | | | | |
| I. Sharpen pencil point with pointer | | | | |
| J. Select drawing size sheet | | | | |
| K. Letter charts in pencil and ink | | | | |
| L. Make blueprint of completed drawing | | | | |
| M. Prepare material list of parts | | | | |
| N. Prepare assembly list | | | | |
| 3. MEASUREMENT | | | | |
| A. Select scale for drawings | | | | |
| B. Measure for factors of drawing reduction | | | | |
| C. Measure with: | | | | |
| 1. Scales | | | | |
| 2. Ruler | | | | |
| 3. Tape | | | | |
| 4. Gauges | | | | |
| D. Measure for: | | | | |
| 1. Dimensions | | | | |
| 2. Radi | | | | |
| 3. Point locations | | | | |
| E. Measure parts for detail size | | | | |

# TASKS and KNOWLEDGES

DRAFTSMAN

| applicable | observe | perform | master |
|---|---|---|---|

4. MATHEMATICS

   A. Apply geometry
   B. Calculate dimensions for drafting details
   C. Calculate radi for layouts
   D. Apply conversion tables
   E. Calculate dimensions with slide rule

5. LAYOUTS

   A. Make layouts of different sizes
   B. Apply brush to fill in inked area
   C. Make plant layouts
   D. Make equipment layouts
   E. Apply line weight to layouts
   F. Record and file layouts

O E Code 17. 23 04
D O T Code 606.782-018

# DRILL PRESS OPERATOR

## SPECIALITY SUMMARY

Operates drill press after proper set up and clamping of material.

## DUTIES AND RESPONSIBILITIES

1. Plans work

   Selects proper cutting tools according to information given on prints and drawings; plans operations in proper sequence.

2. Set-up

   Sets-up drill press for proper operation by selecting speeds and feeds, clamping of material and cutting fluids.

3. Operates drill press

   Operates drill press to produce item according to plan or blue print.

4. Selects coolants and cutting fluids

   Selects coolants for best machinability of metals

5. Maintains equipment

   Lubricates, cleans and adjusts drill press

6. Maintains shop area

   Cleans work area and maintains shop area for safety.

# TRAINING PLAN
## for

DRILL PRESS OPERATOR

SOURCE Conn.

| TASKS and KNOWLEDGES | applicable | observe | perform | master |
|---|---|---|---|---|
| 1. CAREER PROGRESSION | | | | |
| A. Progression in career ladder | | | | |
| B. Duties of each career level | | | | |
| 2. MACHINE SHOP ORIENTATION | | | | |
| A. Work habits | | | | |
| B. Use of time clock | | | | |
| C. Company policies | | | | |
| 1. Time schedule | | | | |
| 2. Fringe benefits | | | | |
| 3. Reporting procedures | | | | |
| A. Illness | | | | |
| B. Accident | | | | |
| 4. Wage and hourly rate | | | | |
| D. Use of tool crib | | | | |
| E. Time and motion study | | | | |
| F. Work load and hourly production | | | | |
| 1. Piece work | | | | |
| 2. Day work | | | | |
| 3. Incentive systems | | | | |
| 3. PRE-PRODUCTION PROCEDURES | | | | |
| A. Work planning | | | | |
| 1. Bill of materials | | | | |
| 2. Equipment and tools | | | | |
| B. Use of job sheets | | | | |
| C. Use of prints | | | | |
| D. Use of manuals | | | | |
| E. Safety precautions | | | | |

53

# TASKS and KNOWLEDGES

DRILL PRESS OPERATOR

| applicable | observe | perform | master |
|---|---|---|---|

4. MACHINE ORIENTATION

   A. Safe use of the drill press
   B. Cleaning procedures for the drill press
   C. Pulleys, motors and speeds
   D. Kinds of chucks and spindles
   E. Change spindle speeds

5. DRILL PRESS USE

   A. Determine tools size
   B. Determine tool kinds
   C. Determine tool material

6. DRILL PRESS SET UP

   A. Understanding of job lay out
   B. Understanding of work holding devices
   C. Understanding of drill press speeds
   D. Understanding of drill press feeds
   E. Set up drill press

      1. Layout
      2. Holding devices
      3. Use of toolmakers buttons
      4. Set drill press speed
      5. Determine proper feed

7. PRINCIPLES OF DRILLING

   A. Use of cutting fluids and coolant
   B. Use of drill gauges
   C. Operate drill press for drilling using cutting fluids and coolants
   D. Determine drill size by use of drill gauge.

8. CARE OF DRILL BITS

   A. Principles of drill grinding
   B. Grind drill bits for proper cutting
   C. Care of drill bits

O.E. Code 17. 19 02
D O T Code 207.782/885

# DUPLICATING SPECIALIST

## SPECIALITY SUMMARY

Operates and performs operator maintenance on duplicating and related equipment.

## DUTIES AND RESPONSIBILITIES

1. Prepares complex offset plates or masters using photographic dry or wet process equipment.

2. Inspects finished plates and masters for quality.

3. Operates offset duplicating presses.

   Fills and regulates ink and water fountain for proper flow to printing plate, attaches plate to cylinder, places paper in feeder, adjusts paper feed, positions copy, and operates press to produce required number of copies of item being duplicated.

4. Operates bindery equipment.

   Operates collating/sorting machines, hand or power paper cutters, power operated paper-drilling machines, single-head stitching and staple machines, and rotary gathering tables.

5. Performs operator maintenance on platemaking units, offset duplicating presses and bindery equipment.

   Cleans, adjusts, lubricates, and repairs working parts. Reports major equipment malfunctions to supervisor.

# TRAINING PLAN
## for

DUPLICATING SPECIALIST

SOURCE USAF

| TASKS and KNOWLEDGES | applicable | observe | perform | master |
|---|---|---|---|---|
| 1. PRINTING CAREER FIELD PROGRESSION | | | | |
| A. Structure of the Printing Career Field | | | | |
| B. Duties and responsibilities of the Duplicating Specialist | | | | |
| C. Duties and responsibilities of the Duplicating Technician | | | | |
| 2. COMMUNICATIONS SECURITY | | | | |
| A. Identify information as classified, unclassified, or of possible intelligence value | | | | |
| B. Determine proper classification of official infomration as Top Secret, Secret, Confidential, or For Official Use only | | | | |
| C. Select and recommend mode of transmission dictated by security and expediency required | | | | |
| D. Observe security precautions involved in voice communications | | | | |
| 3. DUPLICATING PRINCIPLES | | | | |
| A. Photo platemaking | | | | |
| B. Electrostatic platemaking | | | | |
| C. Offset printing | | | | |
| D. Bindery operation | | | | |
| E. Handling and using sensitized materials | | | | |
| F. Characteristics of ink and paper | | | | |
| 4. PLATEMAKING EQUIPMENT | | | | |
| A. Operate electrostatic equipment | | | | |
| B. Operate phototransfer equipment | | | | |
| C. Operate photographic wet process equipment | | | | |
| (1) Roll feed | | | | |
| (2) Sheet feed | | | | |
| D. Mix solutions as necessary | | | | |

# TASKS and KNOWLEDGES

DUPLICATING SPECIALIST

| applicable | observe | perform | master |
|---|---|---|---|

5. OFFSET PRESSES

   A. Operate the following conveyor type presses:
      (1) Metal paper-retainer type
      (2) Marble paper-retainer type

   B. Operate direct-feed type press
   C. Operate two-cylinder type press

6. BINDING EQUIPMENT

   A. Operate hand and electric papercutters
   B. Gather printer sheets by hand
   C. Operate manual collating equipment
   D. Operate semi-automatic collating equipment
   E. Operate auotomatic collating equipment
   F. Operate folding machines
   G. Bind by stapling, stitching, or with posts and screws
   H. Operate power drills
   I. Pad material

7. INSPECTION AND MAINTENANCE

   A. Inspection
      (1) Inspect equipment and work area to insure proper upkeep and utilization
      (2) Check finished product for quality and compliance with job specifications
      (3) Inspect supply and parts storage areas to insure adequate inventory and proper storage procedures
      (4) Conduct periodic inspections of duplicating facilities to:

          a. Determine operational status
          b. Insure adherence to applicable policies and regulations

   B. Maintenance
      (1) Perform preventive maintenance by cleaning and lubricating equipment
      (2) Perform operator maintenance by adjusting equipment and/or replacing worn parts
      (3) Maintain appropriate maintenance records

O. E. Code 17. 10 02
D O T Code 821.381
824.281
829.281/.381

# ELECTRICIAN

## SPECIALITY SUMMARY

Assembles, installs, and wires heat, light, power, air conditioning, and refrigeration components.

## DUTIES AND RESPONSIBILITIES

1. Performs electrical wiring layouts.

   Interprets blueprints, identifies symbols, makes sketches and schematics, describing work for which he receives only verbal orders.

2. Installs rough wiring

   Locates, mounts, installs and runs electrical wiring, electrical boxes, and conduit.

3. Hooks up wiring

   Splices and connects outlets, switches, lighting fixtures. Splices wires and tests line.

4. Installs special purpose receptacles

   Installs receptacles in floors, walls, appliances, heating units, air conditioning apparatus, outdoor lighting fixtures, and basic security systems.

5. Installs power distribution systems

   Installs and wires service head, mounts meter bases, distribution cabinet. Installs breakers, switches, grounds, and branch circuit panels.

6. Performs preventive maintenance

   Maintains equipment records, cleans controls, uses hand and power tools to keep equipment in safe working conditions.

7. Practices safety

   Follows rules and regulations on the National Electrical Code. Fulfills requirements of state, county, and local electrical codes.

# TRAINING PLAN
## for

ELECTRICIAN

SOURCE NJ

| TASKS and KNOWLEDGES | applicable | observe | perform | master |
|---|---|---|---|---|
| 1. CAREER PROGRESSION | | | | |
| A. Progression in career ladder | | | | |
| B. Duties of each career level | | | | |
| 2. ELECTRICAL WIRING LAYOUT | | | | |
| A. Identify electrical drafting symbols | | | | |
| 1. Convenience outlets | | | | |
| 2. Split wired convenience outlets | | | | |
| 3. Special purpose outlets/appliance symbols | | | | |
| 4. Low voltage signal systems | | | | |
| 5. Riser diagram | | | | |
| B. Blueprint reading | | | | |
| 1. Room sizes and location | | | | |
| 2. Stairways | | | | |
| 3. Openings such as windows and doors | | | | |
| C. Specifications | | | | |
| D. Prepare wiring diagram for residential use | | | | |
| 1. Plain wiring runs | | | | |
| 2. Select wire sizes | | | | |
| 3. Calculate fuse size | | | | |
| 4. Calculate circuit loads | | | | |
| 5. Plan tools required for job completion | | | | |
| 6. Plan equipment required for job completion | | | | |
| 7. Plan materials required for job completion | | | | |
| 8. Perform improvement modification on existing plans | | | | |
| 9. Estimate time-material cost factors | | | | |

# TASKS and KNOWLEDGES

ELECTRICIAN

| applicable | observe | perform | master |
|---|---|---|---|

3. ROUGH WIRE

   A. Locate and mount electrical boxes

      1. Mount outlet boxes
      2. Mount switch boxes
      3. Install junction boxes and fittings
      4. Locate and mount lighting fixture boxes
      5. Install cabinet and cutout boxes

   B. Bore holes for wire runs
   C. Run electrical wiring

      1. Romex
      2. BX
      3. Conduit

4. HOOK-UP WIRING

   A. Connect convenience outlets
   B. Connect switches

      1. Single pole - single throw switch
      2. Three way switch
      3. Four way switch

   C. Connection of lighting fixtures
   D. Splice wires using:

      1. Solderless connectors and lugs
      2. Soldering copper, flux and solder
      3. Blowtorch, flux, and solder
      4. Ladle, molten solder, flux

5. TRIM-OUT

   A. Install special purpose receptacles

      1. Range
      2. Floor
      3. Wall
      4. Appliance

# TASKS and KNOWLEDGES

ELECTRICIAN

| applicable | observe | perform | master |
|---|---|---|---|

B. Electrical Systems

1. Perform basic wiring on electrical, gas, and oil fired heating units and controls
2. Connect air conditioning apparatus
3. Operate refrigeration control circuits
4. Develop basic security system plans
5. Analyze audio system requirements for public address systems
6. Place outdoor and special effects lighting fixtures and controls

6. UNDERSTANDING OF POWER DISTRIBUTION SYSTEMS

A. Service entrance
B. Distribution box
C. Service switch
D. Grounding techniques
E. Two wire system
F. Three wire system

7. INSTALL POWER DISTRIBUTION SYSTEM

A. Install service head on building
B. Mount meter base on building
C. Mount distribution cabinet for two wire system
D. Mount distribution cabinet for three wire system
E. Install service breaker or switch
F. Install grounds
G. Install branch circuit power panels

8. PREVENTATIVE MAINTENANCE

A. Maintain equipment records

1. Maintain records of requipment running time
2. Maintain records on frequency of repair data for electrical units

B. Clean controls and exposed units of foreign matter
C. Recommend specific safety procedures
D. Make mathematical computations for current carrying capacities
E. Use common hand tools and power tools to keep equipment in good working order.

O. E. Code 17. 33 99
D O T Code 780.884
782.884

# FABRIC AND RUBBER PRODUCTS SPECIALIST

## SPECIALITY SUMMARY

Inspects, repairs, and fabricates items of fabric equipment, covers, and dopes aircraft control surfaces, and performs shop repair of rubberized products.

## DUTIES AND RESPONSIBILITIES

1. Inspects fabric and rubber goods.

   Examines items such as equipment protective covers, aircraft thermal radiation barriers, aircraft soundproofing, upholstery, protective clothing, fabric covered aircraft control surfaces, life rafts, anti-exposure suits, and life preservers. Records information on inspection forms.

2. Test and cleans fabric and rubber goods.

   Test and cleans aircraft safety belts and shoulder harnesses. Determines feasibility of repair or need for replacement.

3. Repairs fabric and rubber articles.

   Repairs seams of damaged material. Replaces defective eyelets, grommets, fasteners, and slide fasteners.

4. Alters protective clothing and equipment.

   Repairs damaged areas and cuts. Applies patches to damaged rubber and rubberized equipment such as: life rafts, preservers, and clothing. Installs and aligns replacement fittings.

5. Tests repaired articles for serviceability and applies power to repaired areas.

6. Fabricates fabric equipment.

   Reviews work orders to determine specifications for equipment to be manufactured and then manufactures such items as: equipment protective covers, barriers, seat covers, control surfaces, and aircraft soundproofing.

7. Covers aircraft control surfaces.

   Removes unserviceable covers, fabricates, and installs new covers on ailerons, rudders, and elevators. Prepares and applies doping compound.

8. Performs maintenance on shop equipment.

   Sharpens and maintains shears, awls, knives, punch, and die tools. Cleans spray equipment. Cleans, lubricates, times, adjusts, trouble-shoots, and repairs sewing machines.

# TRAINING PLAN
## for

FABRIC AND RUBBER PRODUCTS SPECIALIST

SOURCE USAF

| TASKS and KNOWLEDGES | applicable | observe | perform | master |
|---|---|---|---|---|
| 1. CAREER PROGRESSION | | | | |
| A. Progression in career ladder | | | | |
| B. Duties of each career level | | | | |
| 2. SAFETY FOR THE FABRIC AND RUBBER PRODUCTS SPECIALIST | | | | |
| A. Observe safety precautions for the protection of personnel and equipment | | | | |
| B. Purpose and procedures of accident reporting | | | | |
| C. Markings which indicate radioactivity | | | | |
| 3. TECHNICAL PUBLICATIONS | | | | |
| A. Locate information in technical orders | | | | |
| B. Requisition technical orders | | | | |
| C. Maintain technical orders | | | | |
| D. Report technical order deficiencies | | | | |
| 4. SUPPLY RESPONSIBILITY FOR FABRIC AND RUBBER PRODUCTS SPECIALIST | | | | |
| A. Property accountability and responsibility | | | | |
| B. Use stocklists and catalogs | | | | |
| C. Use applicable tags and forms | | | | |
| 5. MAINTENANCE MANAGEMENT | | | | |
| A. Functions and responsibilities of the Chief of Maintenance | | | | |
| B. Basic functions of management units that make up the Chief of Maintenance staff | | | | |
| C. Manhour reporting system | | | | |
| D. Equipment classification designators | | | | |
| E. Job control number | | | | |
| F. Maintenance data collection | | | | |
| G. Processing and controlling of material | | | | |

# TASKS and KNOWLEDGES

FABRIC AND RUBBER PRODUCTS SPECIALIST

| applicable | observe | perform | master |
|---|---|---|---|

6. MAINTENANCE AND INSPECTION SYSTEM AND FORMS

   A. Maintenance Systems
   B. Inspection Systems
   C. Use manhour reporting forms
   D. Use maintenance data collection forms
   E. Material Deficiency Reporting System
   F. Check reports to determine methods for improving procedures at local activity

7. HAND TOOLS AND SHOP EQUIPMENT

   A. Select and use hand tools
   B. Use shop equipment
   C. Operate and clean spray equipment
   D. Maintain hand tools

8. INSTALL HARDWARE APPLICABLE TO FABRIC AND RUBBER WORK

9. TEXTILE MATERIALS

   A. Construction
   B. Identify and use tapes, webbings, and materials
   C. Identify and use threads and cords
   D. Store materials

10. USE DOPE, CEMENTS AND SOLVENTS APPLICABLE TO FABRIC AND RUBBER WORK

11. SEWING MACHINES

   A. Functional features
   B. Operate
   C. Troubleshoot
   D. Perform preventive maintenance
   E. Replace minor parts

12. SEAMS

   A. Use machine seams and stitchings
   B. Use hand sewn seams

# TASKS and KNOWLEDGES

FABRIC AND RUBBER PRODUCTS SPECIALIST

| applicable | observe | perform | master |
|---|---|---|---|

13. EQUIPMENT PROTECTIVE COVERS

    A. Layout patterns
    B. Fabricate
    C. Inspect
    D. Repair

14. AIRCRAFT THERMAL RADIATION BARRIER CURTAINS

    A. Construction
    B. Inspect
    C. Clean
    D. Repair
    E. Fit

15. AIRCRAFT CONTROL SURFACE COVERS

    A. Inspect and test
    B. Remove
    C. Fabricate
    D. Mix and apply dope
    E. Repair

16. UPHOLSTERY AND AIRCRAFT SOUNDPROOFING

    A. Types of upholstery
    B. Types of aircraft soundproofing
    C. Fabricate
    D. Inspect
    E. Repair

17. PROTECTIVE CLOTHING

    A. Identification and construction
    B. Inspect
    C. Repair
    D. Assemble components
    E. Test
    F. Pack

# TASKS and KNOWLEDGES

FABRIC AND RUBBER PRODUCTS SPECIALIST

| applicable | observe | perform | master |
|---|---|---|---|

18. PERSONNEL AND CARGO RESTRAINT EQUIPMENT (BELTS, HARNESSES, SLINGS)

    A. Types
    B. Inspect
    C. Clean
    D. Repair

19. FLOTATION EQUIPMENT (LIFE RAFTS AND LIFE PRESERVERS)

    A. Identification and construction
    B. Inspect
    C. Test
    D. Repair
    E. Pack
    F. Pack accessory/survival kit

O E Code 17. 10 99
D O T Code 864.781

# FLOOR COVERING INSTALLER

## SPECIALITY SUMMARY

Installs and replaces carpeting and hard surface floor covering such as linoleum and tile.

## DUTIES AND RESPONSIBILITIES

1. Inspects floor

   Inspects floor to be sure it is dry, smooth and free of dust or dirt.

2. Measures and cuts floor covering materials

3. Applies fastenings

   Fastens tackless strips with adhesive, nails or tacks

4. Applies adhesives

   Applies glues and cement for hard floor coverings and carpets

5. Installs floor covering materials

6. Cleans up after installation of floor covering materials

7. Safety

# TRAINING PLAN
## for

FLOOR COVERING INSTALLER

SOURCE _____ CONN.

| TASKS and KNOWLEDGES | applicable | observe | perform | master |
|---|---|---|---|---|
| 1. CAREER PROGRESSION | | | | |
| A. Progression in career ladder | | | | |
| B. Duties of each career level | | | | |
| 2. ORIENTATION | | | | |
| A. Company policies and procedures | | | | |
| B. Customer relations | | | | |
| C. Performance expectations | | | | |
| 1. Time schedule | | | | |
| 2. Appearance and store cleanliness | | | | |
| 3. Care and use of equipment | | | | |
| 4. Store and warehouse safety | | | | |
| D. Floor covering tools and equipment | | | | |
| E. Types of floor covering material | | | | |
| 1. Linoleums and tiles | | | | |
| A. Underlays | | | | |
| B. Pastes and cements | | | | |
| C. Baseboard and metal edge material | | | | |
| 2. Carpeting | | | | |
| A. Types of carpeting | | | | |
| B. Carpet pads | | | | |
| C. Cements | | | | |
| D. Tack strips and edging | | | | |
| 3. HARD SURFACE FLOOR COVERING | | | | |
| A. Measure and estimate | | | | |
| B. Select floor covering material | | | | |
| C. Deliver floor covering material | | | | |
| D. Prepare the floor for covering | | | | |
| 1. Remove old materials | | | | |
| 2. Fill floor surface | | | | |
| 3. Sand floor surface | | | | |

# TASKS and KNOWLEDGES

FLOOR COVERING INSTALLER

| applicable | observe | perform | master |
|---|---|---|---|

E. Installing floor covering

1. Applying under lays
2. Applying roll material
3. Applying tile material
4. Baseboard materials
5. Solvents and cleaners

F. Lay floor cover

1. Cut and fit underlay material
2. Cement underlay
3. Lay out and cut floor covering material
4. Install metal edging
5. Cement or glue for floor covering material
6. Install floor covering
7. Install base board
8. Clean-up

4. CARPETING

A. Estimating materials
B. Use of catalogues and stock numbers
C. Preparing a floor surface

1. Cleaning and filling; sanding
2. Types of padding
3. Fastening materials
4. Types and uses of edging materials

D. Measure and estimate for materials
E. Select materials
F. Deliver materials
G. Prepare floor for covering

1. Remove old materials
2. Install padding
3. Install tack stripping
4. Install tape
5. Install metal edging

H. Installing carpets

1. Cutting a carpet
2. Sewing methods and equipment

# TASKS and KNOWLEDGES

FLOOR COVERING INSTALLER

| applicable | observe | perform | master |
|---|---|---|---|

I. Lay Carpet

1. Cut carpet
2. Sew carpeting
3. Apply floor cement
4. Set carpet in place
5. Stretch carpet
6. Clean up

O. E. Code 17. 02 00
D O T Code 637.281
723.381
.844
827.281

# HOUSEHOLD APPLIANCE REPAIRMAN

## SUMMARY

Services washing machines, dryers, dishwashers, water heaters, ovens and stoves, refrigerators, freezers, air conditioners, garbage disposals and compactors by testing, repairing, replacing components, cleaning and lubricating. Installs rebuilt and new units.

## DUTIES AND RESPONSIBILITIES

1. Troubleshoots Appliances

   Operates appliances to detect unusual noises, overheating or excessive vibration. Looks for faulty electrical connections.

2. Uses

   Uses special tools and testing devices, including, amp meters, volt meters, and pressure guages.

3. Makes necessary repairs or replacements

   Removes old parts and installs new ones, using common and special tools.

4. Handles customer relations

   Use and care of appliance;
   Estimates cost of repairs including labor and materials

5. Record keeping

   Keeps records of parts used and hours worked on job.

6. Installs appliances

   Installs new or rebuilt appliances using common hand and power tools.

# TRAINING PLAN
## for

HOUSEHOLD APPLIANCE REPAIRMAN

SOURCE NJ

| TASKS and KNOWLEDGES | applicable | observe | perform | master |
|---|---|---|---|---|
| 1. CAREER PROGRESSION | | | | |
| A. Progression in career field | | | | |
| B. Duties of each career level | | | | |
| 2. CUSTOMER RELATIONS | | | | |
| A. Advises customers on the use and care of appliances | | | | |
| B. Answers phone calls and questions | | | | |
| C. Makes appointments for service calls | | | | |
| D. Estimates cost of repairs including labor and material | | | | |
| E. Prepares formal bill for labor and material | | | | |
| F. Collects payments for bills rendered | | | | |
| 3. SERVICE WASHING MACHINES | | | | |
| A. Diagnose electrical failures in circuit | | | | |
| B. Use electrical test equipment | | | | |
| 1. Volt meter | | | | |
| 2. Amp meter | | | | |
| 3. Ohm meter | | | | |
| C. Repairs and replaces electrical components | | | | |
| 1. Timers | | | | |
| 2. Relays | | | | |
| 3. Motors | | | | |
| 4. Capacitors | | | | |
| 5. Harness | | | | |
| 6. Switches | | | | |
| 7. Solenoids | | | | |
| D. Diagnose mechanical failures | | | | |
| E. Use hand tools, special tools, torches | | | | |

# TASKS and KNOWLEDGES

HOUSEHOLD APPLIANCE REPAIRMAN

| applicable | observe | perform | master |
|---|---|---|---|

F. Repair or replace mechanical components

1. Water pumps
2. Oil pumps
3. Transmissions
4. Water mixing valves
5. Belts
6. Agitators
7. Filters
8. Hoses
9. Seals
   a. Oil
   b. Water
10. Pedastals
11. Bearings
12. Shafts
13. Clutch

4. SERVICE GAS AND ELECTRIC DRYERS

A. Diagnose electrical failures in circuit
B. Use electrical test equipment

1. Volt meter
2. Amp meter
3. Ohm meter

C. Use remote temperature tester
D. Repair or replace electrical components

1. Timers
2. Relays
3. Motors
4. Capacitors
5. Harness
6. Switches
7. Ignitor cable
8. Solenoids
9. Heating elements
10. Sensors
11. Thermostats

E. Diagnose mechanical failure
F. Use hand tools, special tools, torches
G. Repair or replace mechanical components

1. Cylinder
2. Shaft
3. Bearings
4. Belts
5. Pulleys
6. Idlers
7. Thermocouples
8. Gas Valves

5. SERVICE DISHWASHER

A. Diagnose electrical failures in circuit
B. Use test equipment

1. Volt meter
2. Amp meter
3. Ohm meter
4. Temperature tester

C. Repair or replace electrical components

1. Timers
2. Harness
3. Solenoids
4. Relays
5. Fan
6. Heating element
7. Motor
8. Switches
9. Thermostat

D. Diagnose mechanical failures
E. Use hand tools, special tools, torch
F. Repair or replace mechanical components

1. Water drain pump
2. Pressure pump
3. Water inlet valve
4. Safety inlet valve
5. Hoses
6. Seals

# TASKS and KNOWLEDGES

HOUSEHOLD APPLIANCE REPAIRMAN

| applicable | observe | perform | master |
|---|---|---|---|

7. Gaskets
8. Wash arms
9. Gravity drain valves
10. Soap and rinse dispensers
11. Door lock

6. SERVICE GAS AND ELECTRIC HOT WATER HEATER

A. Diagnose electrical failure in circuit
P. Use test equipment

1. Volt meter
2. Amp meter
3. Ohm meter
4. Remote temperature tester
5. Water pressure guage

C. Repair or replace electrical components

1. Temperature control
2. Sensor
3. Thermostat
4. Heating element
5. High limit control
6. Harness
7. Solenoid

D. Diagnose mechanical failures
E. Use hand tools, plumbing tools, torches
F. Repair or replace:

1. Control pressure relief valve
2. Burner assembly
3. Thermocouple

7. SERVICE GAS AND ELECTRIC WALL OVEN AND STOVE

A. Diagnose electrical failures in circuit
B. Use electrical test equipment

1. Volt meter
2. Amp meter
3. Ohm meter
4. Oven temperature tester

# TASKS and KNOWLEDGES

HOUSEHOLD APPLIANCE REPAIRMAN

| applicable | observe | perform | master |
|---|---|---|---|

C. Repair or replace electrical components

1. Timers
2. Oven controls
3. Thermostat
4. High limit controls
5. Heating elements
6. Harness
7. Solenoids
8. Switches

D. Diagnose mechanical failures
E. Use hand tools, special tools, torch
F. Repair or replace non-electrical components

1. Gas valves
2. Oven control
3. Safety control valve
4. Tubing
5. Springs
6. Glass
7. Gaskets
8. Thermocouple
9. Burner

8. SERVICE REFRIGERATOR, FREEZER, AIR CONDITIONER

A. Diagnose electrical failures in circuit
B. Use electrical test equipment

1. Volt meter
2. Amp meter
3. Ohm meter
4. Capacitor tester

C. Repair or replace electrical components

1. Timers
2. Thermostats
3. High limit controls
4. Pressure controls
5. Capacitors
6. Relays
7. Harness
8. Heaters
9. Cooling fan
10. Condensor fan
11. Fan
12. Solenoids
13. Switches

# TASKS and KNOWLEDGES

HOUSEHOLD APPLIANCE REPAIRMAN

| applicable | observe | perform | master |
|---|---|---|---|

D. Diagnose mechanical failure
E. Use hand tools, special tools, acetylene torch, compound gauges, vacuum pump, hydraulic pump, charging station
F. Repair or replace non-electrical parts or components

1. Capillary
2. Evaporator
3. Expansion valve
4. Reverse cycle valve
5. Condensor
6. Compressor
7. Tubing
8. Gaskets

G. Evacuates system and recharges with Freon 12 or Freon 22

9. SERVICE GARBAGE DISPOSALS AND COMPACTORS

A. Diagnose electrical failures in circuit
B. Use electrical test equipment

1. Volt meter
2. Amp meter
3. Ohm meter

C. Repair or replace electrical components

1. Timers
2. Relays
3. Motors
4. Capacitors
5. Harness
6. Switches

D. Diagnose mechanical failure
E. Use hand tools, special tools, plumbing tools, torches
F. Repair or replace non-electrical components

1. Transmissions
2. Seals
3. Gaskets
4. Clutch
5. Pressure Plate
6. Bearings

# TASKS and KNOWLEDGES

HOUSEHOLD APPLIANCE REPAIRMAN

| applicable | observe | perform | master |
|---|---|---|---|

10. INSTALLATION OF HOUSEHOLD APPLIANCES

A. Washing machines and dishwashers
B. Gas and electric dryers
C. Gas and electric hot water heaters
D. Garabage disposal and compactors
E. Refrigerators, freezers, air conditioners
F. Gas and electric wall ovens and stoves

O E Code 01. 05 04
D O T Code 407.181

# LANDSCAPE GARDENER

## SPECIALITY SUMMARY

Select, propagate, tend, sell, give advice about plants.

## DUTIES AND RESPONSIBILITIES

1. General maintenance

   Cleans grounds using hand tools and power equipment such as leaf blowing machines, rakes, brooms, and hoses. Repairs walks and driveways.

2. Lawn Repair

   Controls insects and worms, unwanted grasses and lawn growth. Fertilizes lawns and sods small and large areas.

3. Lawn Maintenance

   Mows lawns using hand and power mowers. Operates lawn equipment such as rollers, and aireators.

4. Gardening

   Selects, locates and plants shrubs, trees and flowers. Maintains garden beds.

5. Equipment maintenance and operation

   Starts, controls, and maintains equipment such as rotary lawn mowers, leaf blowing machinery and reel mowers.

# TRAINING PLAN
## for

LANDSCAPE GARDENER

SOURCE NJ

| TASKS and KNOWLEDGES | applicable | observe | perform | master |
|---|---|---|---|---|
| 1. CAREER PROGRESSION | | | | |
| A. Progression in career ladder | | | | |
| B. Duties of each career level | | | | |
| 2. GENERAL MAINTENANCE | | | | |
| A. Prepare a residence for work to be done during that appointment | | | | |
| B. Load and unload equipment to be used on the job | | | | |
| C. Operate leaf blowing equipment | | | | |
| D. Clean grounds | | | | |
| 1. Use of rakes | | | | |
| 2. Brooms | | | | |
| 3. Hose | | | | |
| E. Repair concrete and asphalt walks and driveways | | | | |
| 3. LAWN REPAIR | | | | |
| A. Identify harmful insects and worms | | | | |
| B. Spray lawns for harmful grasses and lawn growth | | | | |
| C. Fertilize lawns | | | | |
| D. Grass planting procedure | | | | |
| 1. Grade planting area | | | | |
| 2. Seed planting area | | | | |
| 3. Roll terrain | | | | |
| E. Station sprinkling outlets | | | | |
| F. Use seed mixtures for particular soil types and lawn location | | | | |
| G. Sod small and large areas | | | | |
| 4. LAWN MAINTENANCE | | | | |
| A. Operate a rotary mower for large area and trim work | | | | |
| B. Operate heavy lawn maintenance equipment on flat and slopping terrain | | | | |
| C. Rake a lawn for clippings and dead grass | | | | |

# TASKS and KNOWLEDGES

LANDSCAPE GARDENER

| applicable | observe | perform | master |
|---|---|---|---|

D. Clip overhanging and tall grass

1. Sidewalk area
2. Beds
3. Walls
4. Post and trees

E. Cross cut lawn to spread clippings

5. GARDENING

A. Shrubs and trees

1. Select shrubs and trees
2. Locate shrubs and trees
3. Plant shrubs and trees

B. Flowers

1. Select flowers for particular landscape effect
2. Locate flowers for particular landscape effect
3. Plant flowers for particular landscape effect

C. Cultivate garden beds

D. Bed area treatment

1. Apply peat moss
2. Apply bark chips
3. Apply white stone

E. Safe use of trimming equipment

1. Trim trees
2. Trim hedges
3. Trim shrubs

F. Use various gardening implements

G. Procedure for trees and shrubs

1. Pest control by spraying
2. Apply supplemental liquid nutrients
3. Apply dry nutrients

H. Use an edger along the bed walls

I. Identify weeds and remove weeds

# TASKS and KNOWLEDGES

LANDSCAPE GARDENER

| applicable | observe | perform | master |
|---|---|---|---|

6. EQUIPMENT

   A. Start and control the performance of rotary lawn mowers
   B. Start and control the performance of leaf blowing machinery
   C. Start and control the performance of heavy lawn mowing equipment
   D. Assemble the wings on heavy lawn mowing equipment
   E. Clean all equipment

O E Code 17. 23 03
D O T Code 600.380

# LATHE OPERATOR

## SPECIALITY SUMMARY

Places rough metal stock in lathe and produces a finished item according to blueprints or plans.

## DUTIES AND RESPONSIBILITIES

1. Plans work

   Selects proper tools according to information given on prints and drawings; plans operations in sequence.

2. Sets up lathe for operations

   Selects speeds and feeds for proper cutting operations

3. Operates lathe

   Operates lathe for turning, drilling, facing, knurling and treading

4. Selects coolants

   Selects coolants for best machability of metals

5. Maintains equipment

   Lubricates equipment by using oils and grease

6. Maintains shop area

   Cleans work area and maintains shop area for safety.

# TRAINING PLAN
## for

LATHE OPERATOR

SOURCE CONN.

| TASKS and KNOWLEDGES | applicable | observe | perform | master |
|---|---|---|---|---|
| 1. CAREER PROGRESSION | | | | |
| A. Progression in career ladder | | | | |
| B. Duties of each career level | | | | |
| 2. MACHINE SHOP ORIENTATION | | | | |
| A. Work habits | | | | |
| B. Use of time clock | | | | |
| C. Company policies | | | | |
| 1. Time schedule | | | | |
| 2. Fringe benefits | | | | |
| 3. Reporting procedures | | | | |
| A. Illness | | | | |
| B. Accident | | | | |
| 4. Wage and hourly rate | | | | |
| D. Use of tool crib | | | | |
| E. Time and motion study | | | | |
| F. Work load and hourly production | | | | |
| 1. Piece work | | | | |
| 2. Day Work | | | | |
| 3. Incentive Systems | | | | |
| 3. PRE PRODUCTION PROCEDURES | | | | |
| A. Work Planning | | | | |
| 1. Bill of materials | | | | |
| 2. Equipment and tools | | | | |
| B. Use of job sheets | | | | |
| C. Use of prints | | | | |
| D. Use of manuals | | | | |
| E. Safety Precautions | | | | |

# TASKS and KNOWLEDGES

LATHE OPERATOR

| applicable | observe | perform | master |
|---|---|---|---|

4. MACHINE ORIENTATION

   A. Safe use of lathe
   B. Cleaning procedure for lathe
   C. Lubrication procedures for lathe

5. TOOL SELECTION

   A. Lathe cutting tools

      1. High speed steels
      2. Carbon steels

   B. Selection of tool bits

      1. Type of material
      2. Shape
      3. Grinding of tool bits

6. LATHE OPERATION

   A. General
   B. Types of chucks
   C. Types of dogs
   D. Plain turning
   E. Tapers

      1. Brown and Sharpe
      2. Jacobs
      3. Jarno
      4. Morse

   F. Screw threads

      1. Determining cuts
      2. Determining gearing

   G. Determine feeds and speeds
   H. Set up for feeds and speeds
   I. Use holding devices
   J. Plain turn
   K. Set up for taper turning
   L. Set up for drilling
   M. Set up for chamfering or knurling
   N. Center grinding
   O. Cutting screw threads

# TASKS and KNOWLEDGES

LATHE OPERATOR

| applicable | observe | perform | master |
|---|---|---|---|

7. COOLANTS

   A. Types
   B. Consistency
   C. Needs
   D. Use coolants

      1. Water soluable oil
      2. Sulphur Oil
      3. Paraphin oil
      4. Speciality oils

8. LUBRICANTS

   A. Choice of lubricant
   B. Need for lubricant
   C. Types and kinds of lubricants
   D. Use lubricants

      1. Machine oil
      2. Grase
      3. Spindle oils
      4. Ways oil

9. Use of scrap work and reusable materials

10. Lathe alignment and set up

    A. Use general procedures for checking lathe alignment
    B. Use general procedures for checking lathe set-up.

O E Code 17. 29 03
D O T Code 316.884

# MEAT CUTTER

## SPECIALITY SUMMARY

Prepares fresh and smoked meat and poultry. Cut, clean, bone, trim and grind meats. Weigh, package and display meats.

## DUTIES AND RESPONSIBILITIES

1. Use hand tools and power equipment

   Use such tools as knives, cleavers, saws, grinding and observe use of slicing machines.

2. Prepare pork

   Slaughter, dress, split carcass and cut up pork.

3. Prepare lamb and mutton

   Slaughter, dress, split carcass and cut up lamb.

4. Prepare beef and veal

   Slaughter, dress, split carcass and cut up beef animals.

5. Manufacture prepared meats

   Produce such products as sausage and lard.

6. Prepare smoked meats

   Cut or slice smoked hams, shoulder and bacon.

7. Prepare poultry such as chicken, duck, etc.

# TRAINING PLAN
## for

MEAT CUTTER

SOURCE NJ

| TASKS and KNOWLEDGES | applicable | observe | perform | master |
|---|---|---|---|---|
| 1. CAREER PROGRESSION<br>A. Progression in career ladder<br>B. Duties of each career level | | | | |
| 2. HAND TOOLS AND POWER EQUIPMENT<br>A. Various knives, use and care<br>B. Use of grinder<br>C. Use of cubing machine<br>D. Use of power saw<br>E. Wrap, weigh and display meat | | | | |
| 3. CUTTING PORK - (1) Slaughter, dress and split carcass<br>A. Cut hams<br>B. Cut Loins<br>C. Cut picnic hams (Shoulder)<br>D. Cut butts<br>E. Cut tenerloins<br>F. Cut fat<br>G. Cut fat back, side pork, spare ribs and brisket<br>H. Cut feet, heart, liver, etc. | | | | |
| 4. CUTTING LAMB AND MUTTON - (1) Slaughter, dress and split carcass<br>A. Cut leg of mutton and lamb<br>B. Cut lamb loin<br>C. Cut a lamb back<br>D. Cut shoulder (chuck) and neck<br>E. Cut lamb and mutton breat including the shank<br>F. Cut lamb chops<br>G. Prepare lamb tongue, sweet breads, brains, liver, fries, kidneys, head and mutton tallow | | | | |

# TASKS and KNOWLEDGES

MEAT CUTTER

| applicable | observe | perform | master |
|---|---|---|---|

5. CUTTING BEEF - (1) Slaughter and dress beef

   A. Cut beef neck
   B. Cut beef chuck
   C. Cut beef rib
   D. Cut beef plate, brisket and short rib
   E. Cut beef foreshank
   F. Cut round steak
   G. Cut beef rump roast
   H. Cut a hind beef shank
   I. Cut beef loin
   J. Cut flank beef
   K. Cut extra edible parts, heart, liver, kidney, etc.
   L. Cut boneless cuts of beef

6. CUTTING VEAL

   A. Cut veal leg
   B. Cut veal loin roast
   C. Cut veal loin chops
   D. Cut veal rib roast
   E. Cut veal breast
   F. Cut veal chuck or shoulder
   G. Cut veal shanks
   H. Cut extra edible parts of veal

7. SMOKED MEATS

   A. Cut smoked hams
   B. Cut smoked shoulder
   C. Cut and slice bacon

8. SAUSAGE

   A. Prepare pork trimmings for the grinder
   B. Grind sausage
   C. Stuff sausage
   D. Render lard

9. POULTRY

   A. Pick poultry
   B. Draw poultry

O.E. Code 17.04 21
D O T Code 621.281
621.381

# RECIPROCATING ENGINE MECHANIC-AIRCRAFT

## SPECIALITY SUMMARY

Inspects, removes, installs, repairs, troubleshoots, tests, preserves, and modifies engines andpower packages.

## DUTIES AND RESPONSIBILITIES

1. Performs inspections

   Performs schedules and special inspections of engines and engine systems using applicable preflight, postflight, and phased inspection workcards, and inspection requirement technical orders.

2. Performs functional checks

   Performs engine system checks such as: magneto and distributor timing, compression, valve clearances, idle speeds, and fuel mixtures using applicable test equipment. Takes appropriate action to insure correction of defects.

3. Performs preventive maintenance and repair on installed engines

   Removes and installs engine mounted components, system components, and accessories. Inspects engine components and accessories for cleanliness, alignment, proper clearance and operation, evidence of wear, cracks and looseness according to applicable technical orders and makes appropriate disposition of removed items. Accomplishes corrosion control.

4. Performs engine conditioning functions

   Operates and evaluates engines and performance using appropriate analyzers. Records and evaluates results on engine analysis logs by troubleshooting such systems as ignition, fuel, induction, and torque.

5. Operates ground equipment

   Operates and maintains nonpowered ground equipment and test trailers. Operates Aerospace Ground Equipment. Observes applicable safety precautions and procedures.

6. Accomplishes field maintenance repair on engine power packages

   Removes engines and power packages from containers on aircraft. Disassembles power packages to repair and replace parts. Cleans engine components and performs visual inspection of components such as: carburetors, fuel injection, magnetos, headers, couplings, ignition harness, and engine mounts.

7. Maintains inspection and maintenance records

Post information on applicable maintenance and inspection records. Completes maintenance data forms. Recommends methods to improve equipment performance and maintenance procedures and initiates technical order deficiency reports.

# TRAINING PLAN
## for

RECIPROCATING ENGINE MECHANIC - AIRCRAFT

SOURCE USAF

| TASKS and KNOWLEDGES | applicable | observe | perform | master |
|---|---|---|---|---|
| 1. CAREER PROGRESSION | | | | |
| A. Progression in carrer ladder | | | | |
| B. Duties of each career level | | | | |
| 2. AIRCRAFT MAINTENANCE SAFETY | | | | |
| A. Apply safety precautions when using tools and equipment | | | | |
| B. Practice housekeeping consistent with safety of personnel and equipment | | | | |
| C. Apply safety precautions pertaining to: | | | | |
| 1. Engine air intake and exhaust | | | | |
| 2. High intensity sound | | | | |
| 3. Propeller and rotor planes of rotation | | | | |
| 4. Antenna radiation | | | | |
| D. Position and prepare portable fire extinguishers for use | | | | |
| 3. PUBLICATIONS APPLICABLE TO ENGINE MAINTENANCE | | | | |
| A. Air Force publications pertaining to maintenance | | | | |
| B. Locate information in technical orders | | | | |
| C. Apply technical order instructions | | | | |
| D. Use standard publications pertaining to maintenance | | | | |
| E. Initiate technical order improvement report | | | | |
| 4. MAINTENANCE MANAGEMENT | | | | |
| A. Functions and responsibilities of the Chief of Maintenance | | | | |
| B. Basic functions of management units that make up the Chief of Maintenance's staff | | | | |
| C. Manhour reporting system | | | | |
| D. Maintenance data collection | | | | |
| E. Processing and controlling of material | | | | |

# TASKS and KNOWLEDGES

RECIPROCATING ENGINE MECHANIC - AIRCRAFT

| applicable | observe | perform | master |
|---|---|---|---|

5. MAINTENANCE AND INSPECTION SYSTEM AND FORMS

   A. Maintenance systems
   B. Inspection systems
   C. Use manhour reporting forms
   D. Use maintenance data collection forms
   E. Material deficiency reporting system

6. HAND TOOLS, SPECIAL TOOLS, AND TEST EQUIPMENT

   A. Select, care for, and use hand tools
   B. Select, care for, and use torque wrenches
   C. Select, care for, and use special tools
   D. Select, care for, and use measuring tools
   E. Select, care for, and use test equipment

7. AIRCRAFT ENGINE AND EQUIPMENT RECORDS

   A. Record data on aircraft log
   B. Prepare status tags
   C. Furnish data for Cylinder Compression History form
   D. Refer to and/or furnish data for Historical Record for Aeronautical Equipment Form
   E. Initiate Engine Conditioning Analysis Sheet

8. ENGINES GENERAL

   A. Construction features and operating principles of reciprocating engines and systems
   B. Perform phased/periodic/isochronal inspections on reciprocating engines
   C. Perform special inspections on reciprocating engines
   D. Preserve and depreserve engines installed in aircraft
   E. Comply with technical order changes on engines
   F. Use safetying devices and safetying procedures
   G. Identify and use structural hardware such as hoses, tubing, and fittings
   H. Identify and use aircraft hardware such as nuts, bolts, and washers

9. ENGINE MAINTENANCE

   A. Adjust valve clearances
   B. Adjust engine idle speeds
   C. Adjust engine idle mixtures

# TASKS and KNOWLEDGES

RECIPROCATING ENGINE MECHANIC - AIRCRAFT

| applicable | observe | perform | master |
|---|---|---|---|

D. Rig carburetors or master control forward of the firewall
E. Check cylinder compression
F. Perform cold cylinder checks
G. Perform valve clearance checks
H. Perform carburetor repairs such as removing and installing vapor eliminators, mixture barrels and seals, and automatic mixture controls
I. Perform engine oil system maintenance:

1. Remove and install oil screens
2. Remove and install oil coolers and oil cooler regulators
3. Remove and install oil sumps
4. Remove and install oil pumps
5. Disassemble, clean and assemble oil screens

J. Remove and install engine-driven and engine-mounted accessories
K. Remove and install engine cylinders
L. Remove and install engine nose cases
M. Remove and install engine exhaust system components
N. Remove and install engine fuel system components
O. Remove and install water regulators
P. Perform ignition system maintenance:

1. Remove and install spark plugs
2. Remove and install transformer coils
3. Remove and install ignition harnesses
4. Remove magnetos and distributors
5. Time magnetos and distributors
6. Synchronize magnetos and distributors to engine

Q. Troubleshoot engines and engine systems

10. ENGINE CONDITIONING AND OPERATION

A. Perform engine operational checks
B. Remove or install engine-mounted analyzer synchronizing devices
C. Connect and synchronize analyzers to engines
D. Evaluate engine performance:

1. Analyze results of engine performance checks
2. Interpret analyzer patterns

# TASKS and KNOWLEDGES

RECIPROCATING ENGINE MECHANIC - AIRCRAFT

| applicable | observe | perform | master |
|---|---|---|---|

11. POWER PACKAGE MAINTENANCE

A. Remove power packages/engines
B. Install power packages/engines
C. Prepare power packages for preoiling and depreservation run
D. Clean power packages prior to disassembly
E. Disassemble power packages
F. Preserve and depreserve engine accessories
G. Prepare engines for shipment, including preserving engines for return to overhaul and placing engines in storage containers
H. Maintain engines and power packages in storage
I. Build up power packages

12. QUALITY CONTROL

A. Inspect engine firewall prior to power package installation
B. Inspect power packages following installation
C. Inspect power packages following build up
D. Inspect engines following maintenance
E. Inspect engines for corrosion
F. Inspect parts received from supply
G. Inspect non-powered equipment for serviceability
H. Monitor changes directed by technical orders
I. Monitor engine runup procedures
J. Monitor in-process inspection programs
K. Monitor shop safety programs
L. Spot check spare or installed engines

13. AEROSPACE GROUND EQUIPMENT

A. Operate Aerospace ground equipment:

1. Portable generators
2. Ground heaters
3. Air compressors
4. Portable lighting equipment
5. Spraying equipment for engine preservation
6. Hoisting equipment
7. Maintenance stands
8. Engine stands and dollies
9. Engine preoilers

B. Maintain non-powered Aerospace ground equipment

O. E. Code 17. 03 02
D O T Code 915.864

# SERVICE STATION ATTENDANT

## SPECIALITY SUMMARY

Performs minor repair and tuneup of motor vehicles.

## DUTIES AND RESPONSIBILITIES

1. Replace and adjust system components

   Replace and adjust system components such as distributor, breaker points and generator brushes.

2. Replaces chassis parts

   Replaces defective chassis parts such as shock absorbers, tie-rod ends, brakeshoes, and wheel bearings.

3. Installs accessories

   Installs accessories such as; oil, air and gasoline filters, windshield wiper blades, fan belts and batteries.

4. Lubricates

   Lubricates moving parts of chassis with grease using grease gun. Adds, drains, and refills crankcase.

5. Island operations

   Sells gasoline and diesel fuels

6. Practices safety

# TRAINING PLAN
## for

SERVICE STATION ATTENDANT

SOURCE CONN

| TASKS and KNOWLEDGES | applicable | observe | perform | master |
|---|---|---|---|---|
| 1. CAREER PROGRESSION | | | | |
| A. Progression in career ladder | | | | |
| B. Duties of each career level | | | | |
| 2. ISLAND OPERATIONS | | | | |
| A. Customer relations | | | | |
| 1. Company employee handbook | | | | |
| 2. Personal selling | | | | |
| A. Appearance | | | | |
| B. Greeting | | | | |
| C. Suggestion selling | | | | |
| D. Closing the sale | | | | |
| E. Proper customer relations | | | | |
| 1. Goals of company | | | | |
| 2. Good personal appearance | | | | |
| 3. Use greeting approach | | | | |
| 4. Know service requirements | | | | |
| B. Money handling | | | | |
| 1. Operate register | | | | |
| 2. Handle charge cards | | | | |
| 3. Handle check transactions | | | | |
| 4. Prove cash | | | | |
| C. Operate pumps - know safety regulations | | | | |
| D. Check fluid levels | | | | |
| 1. Transmission | | | | |
| 2. Brakes | | | | |
| 3. Power steering | | | | |
| 4. Battery | | | | |
| 5. Radiator | | | | |
| 6. Washer reservoirs | | | | |

# TASKS and KNOWLEDGES

SERVICE STATION ATTENDANT

| applicable | observe | perform | master |
|---|---|---|---|

E. Check and add oils
F. Check tire pressures
G. Replace wiper blades
H. Set up displays and refill staple items
I. Practice housekeeping

3. BAY OPERATIONS

A. Tire construction

1. Types of tires
2. Types of tubes
3. Tire removal

B. Tire service

1. Operate lift
2. Operate jacks
3. Operate tire changer
4. Change tires
5. Repair Tires
    1. Tubeless
    2. Tube type

6. Install studs

C. Oil Changes - Lubrication

1. Use of lubrication charts
2. Use lubrication charts
3. Drain and refill oil
4. Replace filter
5. Lubricate all points
6. Fill all systems

D. Ignition System Service

1. Operation of testing equipment
2. Causes of electrical failures
3. Minor tune-ups

    A. Spark plugs
        1. Replace
        2. Clean spark plugs
        3. Check gap and reset
        4. Test spark plugs

# TASKS and KNOWLEDGES

SERVICE STATION ATTENDANT

| applicable | observe | perform | master |
|---|---|---|---|

B. Distributor Service

1. Inspect and test wiring
2. Replace points
3. Replace condensor
4. Test coil
5. Replace coil
6. Inspect distributor cap and service

C. Storage Batteries

1. Testing methods
2. Charging procedures
3. Causes of failures
4. Check battery efficiency
5. Replace terminals
6. Replace holddowns
7. Use proper charging techniques

E. Exhaust Systems

1. Remove and replace muffler
2. Remove and replace exhaust pipes
3. Remove and replace tail pipes
4. Use proper clamps

F. Electrical system service - lighting

1. Check circuits
2. Replace bulbs
3. Replace switches
4. Adjust beams
5. Replace fuses

G. Exterior Care-wash and wax

1. Washing methods
2. Drying methods
3. Waxing procedures
4. Wash vehicles
5. Dry vehicles
6. Wax vehicles

# TASKS and KNOWLEDGES

SERVICE STATION ATTENDANT

| applicable | observe | perform | master |
|---|---|---|---|

4. OFFICE PROCEDURES

   A. Billing procedures
   B. Ordering procedures
   C. Inventory procedures
   D. Prepare customer bills
   E. Re-order parts
   F. Calculate sales tax
   G. Prepare inventory lists

O. E. Code 17. 23 055
D O T Code 804.281/014

# SHEET METAL WORKER

## SPECIALITY SUMMARY

Make, install, and repair sheet metal products such as ventilating, air conditioning and heating ducts, roofing, siding, rainspouts. Lay out work, cut and shape metal, fabricate and install using hand and machine tools.

## DUTIES AND RESPONSIBILITIES

1. Sheet metal layout

   Plans metal repair and fabrication operations. Determines extent of damage by visual inspection. Draws working sketch, makes templates, consults drawings, and selects tools and materials. Performs lay out using tools such as rule, scriber, dividers and combination set.

2. Shapes and forms sheet metals by hand

   Shapes and forms sheet metal using hand tools such as hammers, mallets, pliers, nippers, seamers, vises, hand drills, punches, and snips.

3. Shapes and forms sheet metal by machines

   Shapes and forms sheet metal using machines such as shears, brakes, rolls, beading, crimping, turning, wiring, burring, and seaming machines.

4. Assembles sheet metal

   Assembles sheet metal by use of seaming techniques, mechanical fasteners, fusion and adhesion.

5. Performs shop maintenance on shop facilities, equipment and tools.

6. Investigate trade hazards and observes trade safety precautions.

# TRAINING PLAN
## for

SHEETMETAL WORKER

SOURCE USAF

| TASKS and KNOWLEDGES | applicable | observe | perform | master |
|---|---|---|---|---|
| 1. CAREER PROGRESSION | | | | |
| A. Progression in career field | | | | |
| B. Duties of each career level | | | | |
| 2. SHOP ORIENTATION | | | | |
| A. Shoppolicies and regulations | | | | |
| B. Job assignments | | | | |
| 3. TYPES AND GAUGES OF SHEET METAL STOCK | | | | |
| A. Identify various types of sheet metal | | | | |
| B. Store various gauges of sheet metal in proper rack according to type and size | | | | |
| 4. TYPES AND GAUGES OF IRON AND STEEL WIRE | | | | |
| A. Identify various types of wire | | | | |
| B. Store various gauges of wire in proper place according to type and size | | | | |
| 5. TYPES AND SIZES OF FASTENING DEVICES | | | | |
| A. Identify various types of fasteners | | | | |
| 1. Sheet metal screws | | | | |
| 2. Rivets | | | | |
| 3. Bolts and nuts | | | | |
| B. Store sheet metal screws, rivets, and bolts and nuts in proper place. | | | | |
| 6. SAFETY PROCEDURES FOR HANDLING SUPPLIES AND SHEET METAL | | | | |
| A. Identify various shop supplies and safety precautions for each. | | | | |
| B. Store shop supplies in a safe manner | | | | |

# TASKS and KNOWLEDGES

SHEETMETAL WORKER

| applicable | observe | perform | master |
|---|---|---|---|

1. Solder
2. Sal Ammoniac
3. Acid and fluxes
4. Hack saw blades
5. Grinding wheels
6. Brazing and welding rods

7. LAY OUT AND PATTERN DEVELOPMENT

A. Read and interpet blueprints and sketches
B. Prepare sketches and blueprints
C. Lay out work from shop drawings and develop patterns

1. Lay out edges, seams, and notches
2. Lay out patterns and work using:

a. Parallel line development
b. Radial line development
c. Triangulation

8. BENCHWORK SHEET METAL CONSTRUCTION

A. Use and care of sheet metal cutting tools
B. Cut sheet metal with hand tools

1. Use hand snips to cut sheet metal
2. Use chisels to cut sheet metal
3. Use files to cut sheet metal
4. Use hacksaw to cut sheet metal
5. Use cut off shears to cut sheet metal

C. Use and care of sheet metal drilling tools
D. Drill sheet metal with hand tools

1. Use hand drill to drill sheet metal of prescribed gauge
2. Use breast drill to drill sheet metal of prescribed gauge
3. Use electric hand drill sheet metal of prescribed gauge.

E. Use and care of sheet metal punching tools

# TASKS and KNOWLEDGES

SHEETMETAL WORKER

| applicable | observe | perform | master |
|---|---|---|---|

F. Punch sheet metal with hand tools

1. Use solid punch to produce holes in sheet metal
2. Use hollow punch to produce holes in sheet metal
3. Use mechanical hand punch to produce holes in sheet metal

G. Use and care of sheet metal forming tools

H. Form sheet metal using approved techniques

1. Use hammers
2. Use mallets
3. Use pliers
4. Use nippers
5. Use seamers
6. Use C-clamps and angle iron
7. Use vises
8. Use bench stakes
9. Use bench plates

I. Assemble sheet metal using hand tools

1. Seaming with hand groovers and grooving rails
2. Rivet sheet metal using hand tools

   a. Use rivet sets
   b. Use pop riveting gun

3. Solder sheet metal using soldering copper

9. PRINCIPLES OF SHEARING ON THE SQUARING SHEARS

A. Use and care of the squaring shears
B. Operate squaring shears to size stock

10. PRINCIPLES OF SHEARING ON THE CIRCULAR SHEARS

A. Use and care of the circular shears
B. Operate the circular shears to produce discs, rings, irregular cuts, and slit sheet metal

11. PRINCIPLES OF FORMING SHEET METAL ON THE BAR FOLDER

A. Use and care of the bar folder
B. Operate the bar folder to form edges and folds for seams
C. Operate the bar folder to form angles, channels and bars

# TASKS and KNOWLEDGES

SHEETMETAL WORKER

| applicable | observe | perform | master |
|---|---|---|---|

12. PRINCIPLES OF FORMING SHEETMETAL ON THE BOX AND PAN BRAKE

    A. Use and care of the box and pan brake
    B. Operate the box and pan brake to form square and rectangular jobs.
    C. Operate the box and pan brake to form common seams

13. PRINCIPLES OF ROLL FORMING USING SLIP ROLLS

    A. Use and care of slip rolls
    B. Operate the slip rolls to form cylindrical and flared objects
    C. Operate the slip rods to form wires and bands

14. PRINCIPLES OF BEADING

    A. Use and care of beading machine
    B. Form beads on cylindrical and flat stock

15. PRINCIPLES OF CRIMPING

    A. Use and care of crimping machine
    B. Form crimps on cylindrical objects

16. PRINCIPLES OF TURNING

    A. Use and care of turning machine
    B. Turn edges on cylindrical and circular objects

17. PRINCIPLES OF WIRING

    A. Use and care of wiring machine
    B. Operate wiring machine to produce a wire edge on cylindrical, circular and flat stock

18. PRINCIPLES OF BURRING

    A. Use and care of burring machine
    B. Operate the burring machine to burr edges on cylindrical and circular objects

19. PRINCIPLES OF SETTING DOWN

    A. Use and care of setting down machine
    B. Operate setting down machine to set edges on circular and flat objects

# TASKS and KNOWLEDGES

SHEETMETAL WORKER

| applicable | observe | perform | master |
|---|---|---|---|

20. PRINCIPLES OF DOUBLE SEAMING

    A. Use and care of double seaming machine
    B. Operate double seaming machine to seam edges on circular and flat objects

21. PRINCIPLES OF DRILLING USING DRILL PRESS

    A. Use and care of drill press
    B. Operate drill press to drill holes in sheet metal, angle iron and flat stock

22. PRINCIPLES OF GRINDING

    A. Use and care of grinders

        1. Bench grinder
        2. Floor grinder
        3. Power hand grinder

    B. Operate grinders to shape objects and assemblies

        1. Bench grinder
        2. Floor grinder
        3. Power hand grinder

23. PRINCIPLES OF ASSEMBLY

    A. Principles of seaming using grooving machine
    B. Operate grooming machine to produce lock seams
    C. Principles of mechanical fasteners
    D. Use mechanical fasteners

        1. Fasten work with metal screws
        2. Fasten work with rivets
        3. Fasten work with bolts and nuts

    E. Principles of fastening by fusion and adhesion

        1. Solder and braze metal using hard solder
        2. Braze metal using bronze and brass
        3. Weld metal subassemblies and assemblies using:

            a. Spot welder
            b. Oxyacetylene
            c. Electric arc welder

| TASKS and KNOWLEDGES<br>SHEETMETAL WORKER | applicable | observe | perform | master |
|---|---|---|---|---|
| 4. Cut bar stock using oxyacetylene cutting torch. | | | | |
| 24. PERFORMS SHOP MAINTENANCE | | | | |

O E Code 17. 31
D O T Code 620.281/086

# SMALL ENGINE REPAIR

## SPECIALITY SUMMARY

Inspects, maintains, repairs and modifies small gasoline and diesel engines.

## DUTIES AND RESPONSIBILITIES

1. Prepares engine for service

   Inspects and cleans engine for service by degreasing and removal of components which require special attention.

2. Services the ignition system

   Adjusts or repair or replaces such items as spark plugs, magnetos, glow plugs, starters, alternators, batteries.

3. Service cooling and lubrication systems

   Clean, change, or adjust such items as engine oil, oil filter, fan belts, drive mechanism, or thermostats.

4. Services engine components

   Disassembles and reconditions engine components such as head, block, covers, pistons and rings, connecting rods and caps, crankshaft, tappets, and valves.

5. Troubleshoot and tune-up

   Uses meters and gauges to test and adjust compression, ignition, timing and fuel metering system.

# TRAINING PLAN
## for

SMALL ENGINE SERVICE AND REPAIR

SOURCE KENTUCKY

| TASKS and KNOWLEDGES | applicable | observe | perform | master |
|---|---|---|---|---|
| 1. CAREER PROGRESSION | | | | |
| A. Progression in career ladder | | | | |
| B. Duties of each career level | | | | |
| 2. HOUSEKEEPING TASKS | | | | |
| A. Maintaining a clean shop | | | | |
| B. Identify tools | | | | |
| C. Locate tools | | | | |
| D. Wash service rack | | | | |
| E. Wash and clean parts | | | | |
| F. Clean engine and machinery parts | | | | |
| 3. PRINCIPLES OF OPERATION OF INTERNAL COMBUSTION ENGINE | | | | |
| A. Piston and rings | | | | |
| B. Connecting rod and crankshaft | | | | |
| C. Tappets and valves | | | | |
| D. Carburetor | | | | |
| E. Ignition | | | | |
| 4. PREPARING ENGINE FOR SERVICE | | | | |
| A. Cleaning the engine | | | | |
| B. Procedure for parts that require special attention | | | | |
| C. Effect of engine temperature on the cleaning operation | | | | |
| D. Parts to remove for proper cleaning | | | | |
| 5. PREPARE ENGINE FOR SERVICE | | | | |
| A. Clean the engine | | | | |
| B. Prepare parts for service that require special attention | | | | |
| C. Remove the proper parts for cleaning | | | | |

# TASKS and KNOWLEDGES

SMALL ENGINE SERVICE AND REPAIR

| applicable | observe | perform | master |
|---|---|---|---|

6. SERVICE THE IGNITION SYSTEM

   A. Spark Plugs

      1. Clean spark plugs
      2. Gap spark plugs

   B. Adjust contact points and air gap on a magneto
   C. Replace all basic ignition parts (wires, points, condenser, etc)
   D. Install an electronic ignition system
   E. Test and replace glow plugs on a small diesel
   F. Rebuild a starter
   G. Adjust alternator/generator output to specifications
   H. Check specific gravity of a battery

7. COOLING AND LUBRICATION

   A. Measure the operating temperature of a water cooled engine
   B. Replace thermostatic cooling devices on air and water cooled engines
   C. Change engine oil
   D. Clean or replace oil filter
   E. Make oil pressure measurements
   F. Replace cooling fan belts or drive mechanism

8. SERVICE ENGINE COMPONENTS

   A. Disassemble engine components

      1. Head
      2. Crankcase cover
      3. Piston and rings
      4. Connecting rod and caps
      5. Crankshaft
      6. Tappets
      7. Valves
      8. Engine block

   B. Recondition engine components

      1. Repair damaged cylinder block
      2. Bore and hone engine cylinder
      3. Use a micrometer to measure crankshaft size
      4. Replace main and rod bearings
      5. Install piston rings
      6. Grind valve and valve seats
      7. Torque engine bolts

# TASKS and KNOWLEDGES

SMALL ENGINE SERVICE AND REPAIR

| applicable | observe | perform | master |
|---|---|---|---|

9. TUNE UP AND TROUBLESHOOTING

A. Take compression test readings
B. Replace ignition system components
C. Set dwell and ignition timing to specifications
D. Adjust fuel metering systems
E. Use a vacuum gauge
F. Adjust valve timing
G. Trace source of high oil consumption
H. Locate internal engine noises
I. Find causes for hard starting problems
J. Look up adjustment procedures in engine manual

O E Code 17. 01 99
D O T Code 950.782

# STATIONARY ENGINEER

## SPECIALITY SUMMARY

Inspects and maintains equipment to protect public health and comfort.

## DUTIES AND RESPONSIBILITIES

1. Maintains air handling systems

   Lubricates and performs maintenance on motors and pneumatic control systems, and other moving parts.

2. Maintains cyrogenic systems

   Lubricates, maintains motors, pumps, and control valves. Repairs or replaces pipe.

3. Maintain refrigeration on air conditioning equipment

   Inspects, maintains, over-hauls equipment and associated equipment.

4. Maintains boilers

   Inspect, maintain, repair stokers, valves, fans, and fuel systems.

5. General maintenance

   Service feed pumps, oil pumps, water pumps, tanks, heat exchangers, pipeline accessories. Clean, paint and upkeep of buildings, grounds, and equipment.

# TRAINING PLAN
## for

STATIONARY ENGINEER

SOURCE New York

| TASKS and KNOWLEDGES | applicable | observe | perform | master |
|---|---|---|---|---|
| 1. CAREER PROGRESSION | | | | |
| A. Progression in career ladder | | | | |
| B. Duties of each career level | | | | |
| 2. AIR HANDLING SYSTEMS | | | | |
| A. Motor maintenance | | | | |
| B. Lubrication | | | | |
| C. Maintenance on other moving parts | | | | |
| D. Pneumatic control systems | | | | |
| 3. CYROGENIC SYSTEMS | | | | |
| A. Motor and pump maintenance | | | | |
| B. Pipe replacement and repair | | | | |
| C. Maintenance control valves and associated equipment | | | | |
| 4. REFRIGERATION OR AIR CONDITIONING - MACHINERY | | | | |
| A. Operation of equipment | | | | |
| B. Routine maintenance | | | | |
| C. Periodic overalls and inspection | | | | |
| D. Maintenance of associated equipment | | | | |
| 5. BOILERS | | | | |
| A. Operation of equipment | | | | |
| B. Repair stokers and fuel systems | | | | |
| C. Maintain external repair | | | | |
| D. Repair internal and cleaning | | | | |
| E. Repair of brick work and refractory | | | | |
| F. Repair and maintenance of valves, fans, etc. | | | | |

# TASKS and KNOWLEDGES

STATIONARY ENGINEER

| applicable | observe | perform | master |
|---|---|---|---|

6. GENERAL MAINTENANCE AND OPERATION

A. Feed pumps
B. Oil pumps
C. Other water pumps
D. Tanks and heat exchangers
E. Pipeline accessories, traps, strainers, reducers, regulators, etc.
F. Cleaning, painting and upkeep the spaces

O. E. Code 17. 03 01
D O T Code 807.381

# VEHICLE BODY MECHANIC

## SPECIALITY SUMMARY

Repairs and replaces automotive body panels and fenders; straightens vehicle frames; refinishes vehicle bodies; welds metals, using gas and electric methods; repairs and replaces radiators; cuts and fits vehicle glass; and applies protective coatings.

## DUTIES AND RESPONSIBILITIES

1. Repairs damaged vehicle body parts

   Inspects body and frame damage to determine feasibility and best method of repair. Determines sequence in which damage occurred. Checks frame for damage and alignment and straightens and repairs frame. Straightens deformed panels using hand and power tools. Welds cracks and seams; bumps and dings out creases and dents; and shrinks or stretches damaged metal. Locates surface irregularities with file, light or hand. Removes paint and rust, and cleans surfaces. Applies body filler to build up depressed areas. Smooths filled areas until uniform in contour with adjoining areas. Repairs locks, latches, remote controls, window regulators, window channels, and wooden body parts.

2. Removes and installs body sections

   Removes, installs, adjusts, and aligns body components, such as fenders, doors, door panels, hoods, deck lids, grills, bumpers, and roof and quarter panels. Removes and replaces weather and chafing strips.

3. Aligns body and frame

   Aligns body and frame using trammels, measuring tape, plumb bobs, hydraulic jacks, and associated equipment.

4. Removes, cuts, and installs automotive gass

   Removes grazes, cracked, or broken safety glass. Straightens, repairs, or replaces window channels and regulators. Cuts laminated safety glass using patterns, cutters, pliers, electric resistant wire, and plastic cutting knife. Grinds, bevels, and smooths edges of glass using glass edging machine. Installs glass in bodies and doors. Replaces curved surface glass with factory replacements.



(Over)

5. Refinishes automotive bodies

   Prepares vehicle surfaces for painting. Removes old paint and rust by scraping, grinding, sanding, brushing, or applying paint remover. Applies neutralizing and chemical conditioning solutions to bare metal surfaces. Covers sections and parts not to be painted, using masking tape and paper. Applies primers and primer surfacers, and paints metal, fabric or wood accessories, equipment, and assemblies with lacquer or enamel, using air or airless spray equipment. Applies lettering and identifying insigna. Applies corrosion control materials.

6. Equipment maintenance

   Cleans, lubricates, and performs minor adjustments and repairs to painting equipment.

7. Cleans, tests, and repairs vehicle radiators and associated parts

   Cleans radiators by boiling in chemical solution, rodding, and sand blasting. Removes and installs cores, tubes, fins, headers, tanks, inlets, and outlets. Applies tank patches, blocks coolant passages, and splices tubes. Solders, using air/acetylene or air/propane torches. Tests radiators for leaks and blockage using radiator test tanks and flo-tester.

8. Welds and repairs metals and alloys

   Plans metal repair and fabrication. Prepares metal for welding by cleaning and beveling. Sets up job by tack welding or use of various jigs, clamps, or fixtures. Selects proper torch tip, filler rod, and flux, regulates gas pressure, and adjusts flame for metal welded by oxyacetylene. Selects amperage setting and suitable rod for metal being welded by metallic arc. Completes weld of metals such as low carbon steel, cast iron and aluminum by fusion or adhesion process.

# TRAINING PLAN
## for

VEHICLE BODY MECHANIC

SOURCE USAF

| TASKS and KNOWLEDGES | applicable | observe | perform | master |
|---|---|---|---|---|
| 1. CAREER LADDER PROGRESSION | | | | |
| A. Progression in career field | | | | |
| B. Duties of each career level | | | | |
| 2. PRACTICE AUTOMOTIVE PERSONNEL AND EQUIPMENT SHOP SAFETY | | | | |
| 3. VEHICLE MAINTENANCE PUBLICATIONS | | | | |
| A. Scope and application of the administrative publications system | | | | |
| B. Scope and application of the technical order system | | | | |
| C. Maintain publication files | | | | |
| D. Use appropriate publications to locate specific information | | | | |
| 4. MAINTENANCE TOOLS AND EEQUIPMENT | | | | |
| A. Use tools and equipment | | | | |
| B. Perform operator maintenance of tools and equipment | | | | |
| 5. GENERAL VEHICLE MAINTENANCE | | | | |
| A. Feasibility and method of repair | | | | |
| B. Bump out folds, creases and dents | | | | |
| C. Weld parts and accessories | | | | |
| D. Locate irregularities | | | | |
| E. Shrink or stretch metal | | | | |
| F. Fill depressed areas | | | | |
| G. Smooth filled areas | | | | |
| H. Fabricate and install special signs and equipment | | | | |
| I. Select and use hardware to perform maintenance on vehicles | | | | |

# TASKS and KNOWLEDGES

VEHICLE BODY MECHANIC

| applicable | observe | perform | master |
|---|---|---|---|

6. BODY, CAB, AND FRAME

   A. Principles of construction, function and relationship of body, cab, frame, and components
   B. Repair, replace and/or align

      1. Frame
      2. Panels
      3. Doors
      4. Fenders
      5. Bumpers
      6. Grille
      7. Deck lid
      8. Hood

7. TRIM, HARDWARE, AND UPHOLSTERY

   A. Function and relationship of trim, hardware and upholstery
   B. Repair, replace and/or adjust

      1. Mouldings
      2. Regulators
      3. Locks and controls
      4. Channels
      5. Upholstery
      6. Weather and chafing strips

8. GLASS

   A. Construction, function and relationship of windows and windshields
   B. Remove, cut, and install

      1. Windows
      2. Windshields

9. PAINTING

   A. Principle of painting, characteristics of paint, and relationship of paints
   B. Preparation of surface

      1. Clean
      2. Remove rust and paint
      3. Mask

# TASKS and KNOWLEDGES

VEHICLE BODY MECHANIC

| applicable | observe | perform | master |
|---|---|---|---|

10. RADIATORS

    A. Principles of operation, construction and relationship to cooling system
    B. Repair or replace

        1. Cores
        2. Tanks
        3. Headers
        4. Inlets and outlets
        5. Oil coolers
        6. Tubes and fins

    C. Use visual, operational means and test equipment to check radiators and components

11. A. Principles of operations; and welding procedures

        1. Oxygen/acetylene
        2. Metallic arc
        3. Gas shielded

    B. Use welding equipment

        1. Oxygen/acetylene
        2. Metallic arc
        3. Gas shielded

O E Code 07.99 00
D O T Code 356.874

# VETERINARY HOSPITAL ASSISTANT

## SPECIALITY SUMMARY

Assists the veterinarian with treatment room functions, animal care, mechanical functions, and office procedures.

## DUTIES AND RESPONSIBILITIES

1. Treatment room functions

   Assists doctor during examination and treatment of animals

2. Mechanical functions

   Prepare food for animals. Sterilize and store equipment. Perform routine maintenance such as lubricating equipment.

3. Office procedures

   Receives clients, schedules appointments, answers telephone, collects payments, orders supplies and files.

4. Related activities

   Cares for animals such as bathe, brush, feed, water, clip hair and nails. Sweep, dust, mop and hose treatment room and animal quarters.

# TRAINING PLAN
## for

VETERINARY HOSPITAL ASSISTANT

SOURCE NJ

| TASKS and KNOWLEDGES | applicable | observe | perform | master |
|---|---|---|---|---|
| 1. CAREER PROGRESSION | | | | |
| A. Progression in career ladder | | | | |
| B. Duties of each career level | | | | |
| 2. OFFICE | | | | |
| A. Receive clients | | | | |
| B. Schedule appointments | | | | |
| C. Answer telephone | | | | |
| D. Collect payments on accounts | | | | |
| E. Order supplies | | | | |
| F. File necessary medical forms | | | | |
| G. Clean and care for office | | | | |
| 3. TREATMENT ROOM FUNCTIONS | | | | |
| A. Assist doctor during examination | | | | |
| B. Care for animal under treatment | | | | |
| C. Hold animal in treatment room | | | | |
| D. Lift animal onto treatment table | | | | |
| E. Lead, wheel or carry animal from quarters to treatment room | | | | |
| F. Administer anesthetic and medications under direction of veterinarian | | | | |
| 4. MECHANICAL | | | | |
| A. Sterilize surgical instruments, such as rubber gloves, syringes, and test tubes with germicides and autoclave | | | | |
| B. Store sterilized instruments | | | | |
| C. Perform routine maintenance such as lubricating equipment | | | | |
| D. Measure, mix, grind, and chop specific ingredients to prepare food. | | | | |

# TASKS and KNOWLEDGES

VETERINARY HOSPITAL ASSISTANT

| applicable | observe | perform | master |
|---|---|---|---|

5. RELATED ACTIVITIES

A. Bathe animals
B. Brush animals
C. Feed and water animals
D. Clip hair and nails of animals
E. Sweep, dust, mop and hose treatment room and animal shelters.

O. E. Code 17. 23 36
D O T Code 812.884

# WELDER

## SPECIALITY SUMMARY

Welds, cuts, brazes, forges, heat treats, and solders metals in fabrication, repair, and surface treatment of metal parts and components.

## DUTIES AND RESPONSIBILITIES

1. Welds metals by oxyacetylene welding process

   Plans metal repair and fabrication operations. Determines extent of damage by visual inspection. Draws working sketch, makes templates, consults drawings, and selects tools and materials. Performs layout, using tools such as rule, scriber, dividers, and combination set. Shapes and forms metals for proper set up, using tools such as power shears, cutoff wheels, cutting torches, and metalworking hand tools. Determines need for machining parts. Sets up job by tack welding and use of various jigs, clamps, and fixtures. Selects proper torch tip, filler rod, and flux; regulates gas pressure; and adjusts flame for metal being welded, and for cutting metals to size. Preheats and postheats work and completes welds on metals such as carbon steels, cast iron, copper and their alloys by fusion and adhesion processes. Welds butt, lap, tee, and corner joints in flat, vertical, horizontal, and overhead working positions. Hard surfaces metals to increase resistance to wear, corrosion, and impact. Brazes and solders ferrous and nonferrous metals.

2. Welds metals and alloys by metallic arc-welding process

   Plans repair and fabrication operations. Selects welding process and electrode suitable for type and thickness of metal and type of joint required. Shapes and forms parts and sets up work for welding, using jigs, clamps, and positioners. Welds butt, lap, tee, and corner joints in flat, vertical, horizontal and overhead working positions. Adjusts welding apparatus, and completes welds on ferrous and nonferrous metals. Applies hard surfacing material to increase resistance to wear, corrosion and impact.

3. Welds metals and alloys using the tungsten inert gas (TIG and metal inert gas (MIG)

   Welds light gages of heat and corrosion-resistant ferrous alloys, aluminum and magnesium alloys, titanium, and titanium alloys, nickel base, and cobalt base alloys using inert gas-shielded arc-welding process.

4. Welds metals and alloys by resistance and other welding processes:

   Welds light gages of carbon and alloy steels, aluminum and magnesium alloys, heat and corrosion resistant alloys, and titanium alloys.

5. Forges and repairs small tools and miscellaneous items

   Heats bar and rod metal stock, using oxyacetylene torch or coal-fired forge. Forges metals to required shape, using blacksmith's tools such as sledges, swages, punches, tongs, and anvils. Forges simple parts such as rings, hooks, and chair links. Dresses cutting edges of forged-type tools such as cold chisels, wedges, pry bars, and rock drills.

6. Cleans and surfaces metals

   Identifies and determines classification of ferrous and nonferrous metals. Anneals, normalizes, hardens, and tempers ferrous and nonferrous metals. Cleans grease, scale and oxides from metal parts, using alkaline and acid solutions, electrolysis and mechanical methods such as sandblasting, tumbling, and buffing. Places parts in electrolyte solutions and removes parts when desired surface treatment is complete. Washes and buffs metal parts to remove poisonous or corrosive deposits and to improve finish.

7. Maintains welding equipment

   Performs operator maintenance on electric and oxyacetylene welding equipment.

# TRAINING PLAN
## for

WELDER

SOURCE USAF

| TASKS and KNOWLEDGES | applicable | observe | perform | master |
|---|---|---|---|---|
| 1. CAREER LADDER PROGRESSION | | | | |
| A. Progression in career ladder | | | | |
| B. Duties of each career level | | | | |
| 2. SHOP SAFETY | | | | |
| A. Practice good housekeeping and fire prevention measures | | | | |
| B. Practice safety requirements in the performance of required tasks in the shop | | | | |
| C. Radiation hazard markings | | | | |
| D. Observe safety hazards and precautions | | | | |
| E. Utilize health and safety equipment | | | | |
| 3. TECHNICAL PUBLICATIONS | | | | |
| A. Purpose, scope, and application of technical orders | | | | |
| B. Use technical order indexes to locate required technical information | | | | |
| C. Read and interpret technical order maintenance drawings and diagrams | | | | |
| D. Initiate technical order improvement report | | | | |
| 4. RESPONSIBILITY FOR SUPPLIES AND EQUIPMENT | | | | |
| A. Purpose, scope, and application of the supply system | | | | |
| B. Use supply condition tags | | | | |
| C. Property accountability and responsibility | | | | |
| D. Use index and supply catalogs | | | | |
| 5. METAL PROCESSING HANDTOOLS AND SHOP EQUIPMENT | | | | |
| A. Select, use, and care for handtools | | | | |
| B. Select, use, and care for special tools and measuring devices | | | | |
| C. Store shop equipment and materials | | | | |

# TASKS and KNOWLEDGES

WELDER

| applicable | observe | perform | master |
|---|---|---|---|

6. OXYACETYLENE WELDING EQUIPMENT

   A. Assemble and operate oxyacetylene welding equipment
   B. Test apparatus for gas leaks
   C. Adjust torch for welding flames
   D. Close down and disassemble welding apparatus
   E. Perform operator maintenance on welding and cutting equipment

7. OXYACETYLENE WELDING OF CARBON STEEL

   A. Types, properties, and uses of carbon steel
   B. Weld specifications
   C. Identify and determine classification of ferrous metals
   D. Identify and determine classification of nonferrous metals
   E. Metal identification by acid, flame, and spark
   F. Weld beads on steel sheet
   G. Set up and weld lap joints in the flat position
   H. Set up and weld butt joints in the flat position
   I. Set up and weld tee joints in the flat position
   J. Set up and make fillet welds in the horizontal and vertical positions

8. METALS PROCESSING SHOP PRACTICES

   A. Interpret shop drawings, diagrams and blueprints
   B. Make shop drawings and sketches of welded assemblies
   C. Lay out and fabricate tubular joints and assemblies
   D. Operate power equipment
   E. Weld tubular assemblies

9. OXYACETYLENE WELDING OF HEAT AND CORROSION RESISTANT FERROUS ALLOYS

   A. Types and uses
   B. Weld lap joints
   C. Weld butt joints
   D. Weld tee joints

10. OXYACETYLENE CUTTING

   A. Factors pertaining to oxyacetylene cutting
   B. Perform oxyacetylene cutting operations

# TASKS and KNOWLEDGES

WELDER

| | applicable | observe | perform | master |
|---|---|---|---|---|
| 11. LEAD AND SILVER SOLDERING | | | | |
| A. Principles and techniques | | | | |
| B. Silver solder ferrous and nonferrous metals | | | | |
| C. Lead solder ferrous and nonferrous metals | | | | |
| 12. BRAZING FERROUS METALS | | | | |
| A. Mechanical properties produced by brazing | | | | |
| B. Braze steel and gray iron castings | | | | |
| 13. OXYACETYLENE WELDING OF FERROUS CASTINGS | | | | |
| A. Mechanical properties and uses of various types of cast iron | | | | |
| B. Identify cast iron castings | | | | |
| C. Fusion weld gray cast iron | | | | |
| 14. SURFACE TREATMENT OF METALS USING THE OXYACETYLENE WELDING PROCESS | | | | |
| A. Purpose, types, and mechanical properties of surface treatment materials | | | | |
| B. Surface treat carbon steels | | | | |
| C. Grind and finish hard surface deposit | | | | |
| 15. HEAT TREATMENT OF METALS | | | | |
| A. Types and uses of heat treating furnaces | | | | |
| B. Operate heat treating furnaces | | | | |
| C. Heat treating furnace pyrometers | | | | |
| D. Maintain and repair furnaces | | | | |
| E. Fabricating methods and properties of metal | | | | |
| F. Composition of metals and alloys and their relation to heat treatment | | | | |
| G. Basic structures produced during heat treating operations | | | | |
| H. Normalize carbon and alloy steels | | | | |
| I. Harden carbon and alloy steels | | | | |
| J. Temper carbon and alloy steel specific hardness and tensile strength values | | | | |
| K. Anneal carbon and alloy steels | | | | |
| L. Case harden metals | | | | |
| M. Spheroidize high carbon steels | | | | |
| N. Heat treat aluminum and aluminum alloys | | | | |
| O. Heat treat corrosion resistant ferrous alloys | | | | |

# TASKS and KNOWLEDGES

WELDER

| | applicable | observe | perform | master |
|---|---|---|---|---|
| P. Design of parts in relation to heat treatment | | | | |
| Q. Nondestructive inspection methods | | | | |
| R. Plan, lay out, and set up heat treating equipment | | | | |
| S. Heat treat nickel base alloys | | | | |
| T. Heat treat titanium alloys | | | | |
| 16. HARDNESS TESTING | | | | |
| A. Purpose, principles, and methods | | | | |
| B. Test metal for hardness using hardness testers | | | | |
| C. Perform operator maintenance on hardness testers | | | | |
| 17. FORGING | | | | |
| A. Operate oxyacetylene torch and use proper techniques for heating steel to forging temperature | | | | |
| B. Characteristics and uses of tool steels | | | | |
| C. Forge ground equipment by torch heating | | | | |
| D. Torch forge common handtools | | | | |
| E. Determine heat treating temperatures by comparing heat colors to color charts | | | | |
| F. Perform torch heat treating | | | | |
| 18. METALLIC ARC WELDING | | | | |
| A. Principles of operation and use of various types of electric arc welding machines | | | | |
| B. Set up and adjust arc welding machine preparatory to welding | | | | |
| C. Perform operator maintenance of arc welding machines | | | | |
| D. Select and identify electrode types | | | | |
| E. Employ proper welding techniques in building up flat surfaces | | | | |
| F. Prepare joints for welding | | | | |
| G. Weld specifications | | | | |
| H. Weld butt joints on heavy carbon steel sheet and plate in the flat position | | | | |
| I. Weld butt joints on sheet steel in the flat position | | | | |
| J. Make fillet welds on carbon steel sheet in the flat position | | | | |
| K. Make fillet welds on carbon steel sheet in the horizontal position | | | | |
| L. Make fillet welds on carbon steel in the vertical position | | | | |
| M. Make fillet welds on carbon steel in the overhead position | | | | |
| N. Weld carbon steel pipe joints | | | | |
| O. Weld butt joints on heat and corrosion resistant ferrous alloys | | | | |
| P. Surface treat various metals | | | | |
| Q. Weld butt joints on gray iron castings | | | | |
| R. Perform electric arc cutting | | | | |
| S. Weld butt joints on aluminum and aluminum alloy plate | | | | |

# TASKS and KNOWLEDGES

WELDER

| applicable | observe | perform | master |
|---|---|---|---|

19. INERT GAS SHIELDED ARC WELDING

A. Tungsten inert gas (TIG) welding

1. Principles and operation of equipment
2. Set up and and make correct apparatus settings for welding
3. Weld specifications
4. Make fillet welds on carbon and alloy steel
5. Weld edge joints on heat and corrosion resistant ferrous alloys
6. Weld butt joints on heat and corrosion resistant ferrous alloys
7. Weld lap joints on heat and corrosion resistant ferrous alloys
8. Weld tee and corner joints on heat and corrosion resistant ferrous alloys
9. Position weld heat and corrosion resistant ferrous alloy joints
10. Weld joints on aluminum
11. Weld butt joints on magnesium
12. Weld butt joints on titanium and titanium alloys
13. Weld butt joints on nickel base alloys
14. Weld joints on low alloy steel

B. Metal inert gas (MIG) welding

1. Purpose and application
2. Principles and operation of equipment

20. RESISTANCE WELDING

A. Operate resistance spot welding equipment
B. Test spot welds for strength, porosity, nugget size, and shape
C. Perform operator maintenance on resistance welding machines

21. ENGINE REPAIR

A. Location, function, and service requirements of the various hot section parts
B. Determine cleaning methods, repair procedures, and techniques for weld repair
C. Weld repair engine hot section parts
D. Materials required for repair of parts and assemblies
E. Weld repair exhaust manifolds

# TASKS and KNOWLEDGES

WELDER

| applicable | observe | perform | master |
|---|---|---|---|

22. CLEANING, ELECTROPLATING, AND CORROSION CONTROL

- A. Identification and prevention of corrosion
- B. Clean metals
- C. Principles involved in plating
- D. Prepare and test plating solutions
- E. Electroplate aircraft and ground equipment parts
- F. Strip plating from parts prior to replating or nondestructive inspection
- G. Practice safety precautions pertinent to a plating shop
- H. Plan, lay out, and set up electroplating shop
- I. Perform miscellaneous surface treatments

23. WELD HIGH PRESSURE AND CRYOGENIC SYSTEMS (TIG PROCESS)

- A. Weld stainless steel pipe joints
- B. Weld aluminum and aluminum alloy pipe